

RESIDENTIAL AIR CONDITIONING WARM AIR HEATING SHEET METAL CONTRACTING



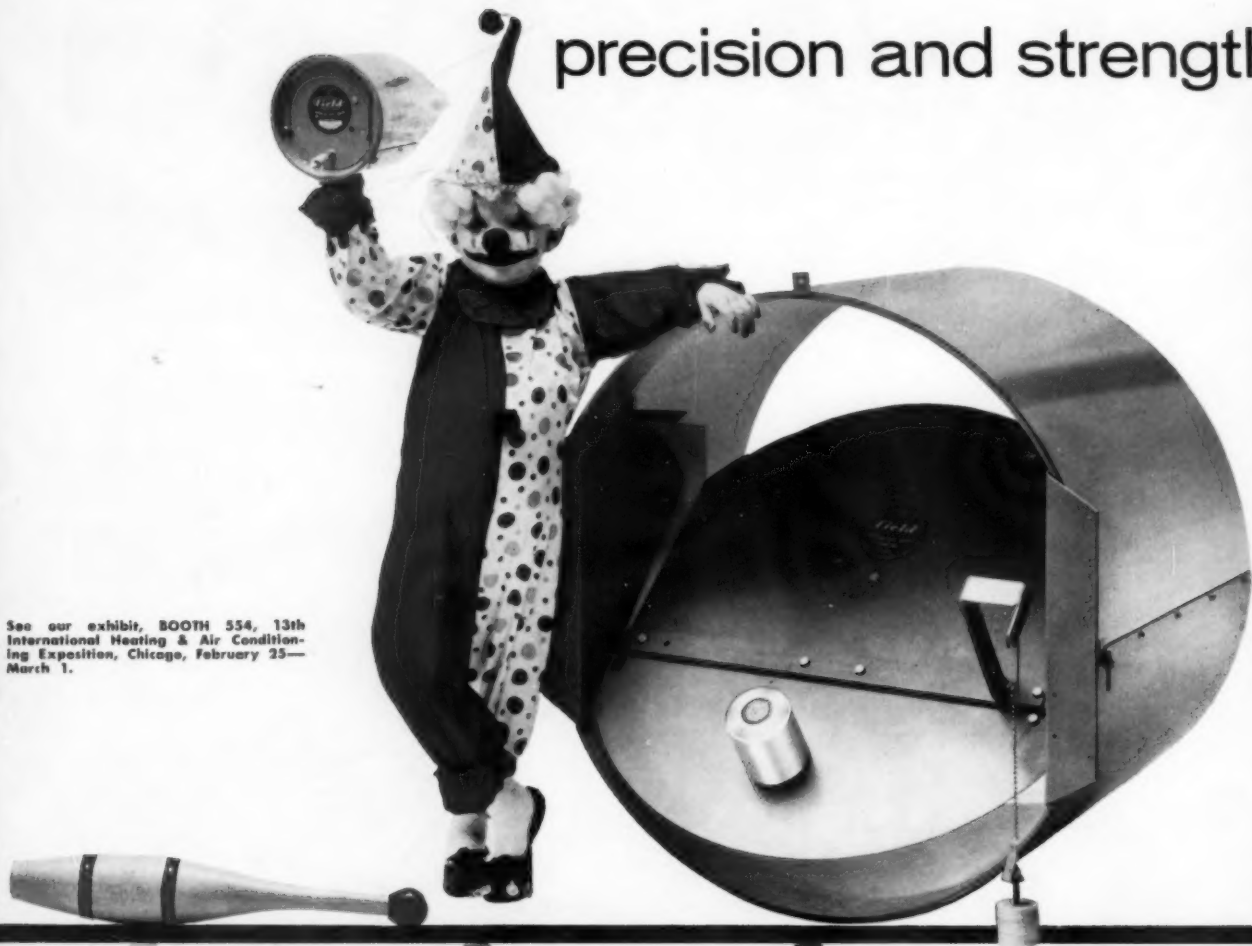
"BIGGEST SHOW YET"—the 13th International Heating & Air-Conditioning Exposition, held in conjunction with the 63rd annual meeting of ASHAE—opens this month in Chicago. Turn to page 105 for Artisan's complete Show Section, listing exhibitors and products displayed, and featuring a handy guide to help you plan your route through the huge display area



midget or GIANT

Field draft controls
provide both
precision and strength

See our exhibit, BOOTH 554, 13th
International Heating & Air Condition-
ing Exposition, Chicago, February 23—
March 1.



FIELD CONTROL DIVISION
of H. D. Conkey & Company, Mendota, Ill.

AFFILIATES:
Conco Building Products, Inc. • Brick, Tile, Stone
Conco Materials Handling Div. • Cranes, Hoists

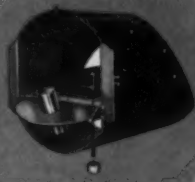
Represented in Canada by Ontor Limited,
12 Leswyn Road Toronto 10, Ont., Canada

field



SIZES
6" THRU 32"

Field "M" Controls
for oil and coal fired
domestic, commercial
and industrial heating plants



SIZES
8" THRU 32"

Field "MG" Double-
Acting Controls for gas
fired commercial and
industrial heating plants



SIZES
6" THRU 9"

Field "RC" Con-
trols for domestic oil and
coal fired heating plants, for
flue sizes 5" through 10"

Take pride and profit

in installing

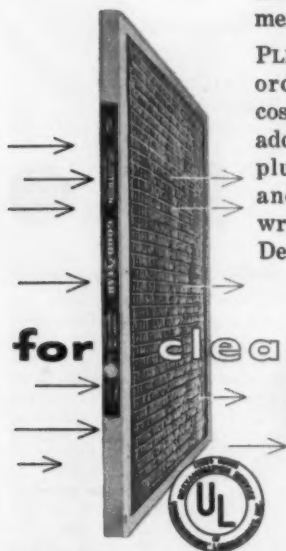
PLIOTRON

"the filter that's more than a filter"

PLIOTRON is the world's first fully washable, panel-type, electrostatic air filter. It's a super-efficient filter you'll take pride and profit in installing in every home, office building, store or plant with an air conditioning or forced warm air heating system.

PLIOTRON is much more than an ordinary filter. Its special plastic filter medium actually attracts and captures up to 400% more fine dust and dirt particles than ordinary air filters. Moreover, PLIOTRON depth-loads rather than surface-loads for longer, more efficient service between cleanings. And it lasts indefinitely—can be restored, when finally dirty, to like-new efficiency with a quick bath—no messy oiling required.

PLIOTRON costs more at first than ordinary filters. But its added cost is more than made up by its added efficiency and added life, plus simplicity of installation and maintenance. For details, write to Goodyear, Pliotron Sales Dept., Akron 16, Ohio.



for cleaner air everywhere—

PLIOTRON AIR FILTER BY

GOOD YEAR

THE GREATEST NAME IN RUBBER

Pliotron—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio



AMERICAN ARTISAN

FEBRUARY 1957

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Founded 1864; Vol. 94 No. 2

RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING

SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

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Published monthly by Keeney Publishing Company, 6 N. Michigan Ave., Chicago 2, Ill., U.S.A. Copyright 1957 by Keeney Publishing Company.

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Member of Audit Bureau of Circulations,
Magazine Publishers Association, Inc., and
Associated Business Publications

Yearly Subscription Price—U.S. and possessions, \$3.00; Canada, Cuba, Mexico, South America, Central America, \$4.00; Others \$6.00. Single copies, U.S. and possessions, 35c. Back numbers, 60c. January, 1957, Directory Issue, \$1.50 per copy. *Change in Address:* Report new and old address to publisher and local post office; deadline date 18th of preceding month. Entered as second-class matter, July 29, 1932, at the post office at Chicago, Illinois, under the Act of March 3, 1879. Additional entry at Mendota, Ill.



note the complete Utility line

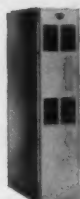
HEATING-COOLING COMBINATION



COUNTERFLOW
FORCED AIR
FURNACE



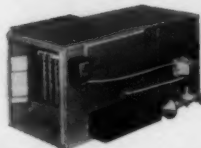
VERTICAL
FORCED AIR
FURNACE



UNIT HEATER



HORIZONTAL FORCED AIR FURNACE



WALL HEATER



UTILITY
APPLIANCE CORP.
Manufacturers of
Utility Furnaces,
Air Coolers,
Air Conditioners,
Water Heaters and
Suffers & Settlers
and Occidental
Gas Ranges



The unit that fits the job, helps you get the job. For all kinds of residential and commercial installations, Utility heating and air conditioning enables you to match the specified need with the exact type, size and capacity required. Utility Weatheramic® Forced Air Furnaces and Air Conditioners, with the sales appeal of color in Bank Note Green, feature economy in cost, installation and operation. Noise elimination is assured by the patented Sy-lent Heat exchanger & diaphragm control valves. Utility Unit Heaters have the patented Armor-Glas® protected heat exchanger to prevent corrosion, slow speed fan, full change summer-winter switch, automatic fan control and, like the Weatheramic line, are Bonderized beneath their handsome baked enamel outer finish. Utility Automatic Wall Heaters come in single and dual types, with manual or thermostatic controls. You'll note how easy it is to sell the job with Utility equipment, backed by a written guarantee.

UTILITY APPLIANCE CORP. 4851 south alameda street, los angeles 58, california

the editor's notebook

Thumbing Through This Month's Artisan

... we attend the big International Heating, Ventilating and Air Conditioning Exposition at the Chicago International Amphitheatre in conjunction with the ASHAE convention. We are guided through the exposition, covering more floor area than any previous show of its kind, by a handy guide card showing the location of every aisle and booth. Folded to pocket size, the card can be used to locate exhibits, personnel and equipment.

Condenser

... and we find out *How to Install a Remote Air Cooled Condensing Unit* — a type of summer cooling installation which has become increasingly important because of municipal water restrictions and customer preference. We follow the step-by-step installation procedure with an experienced crew, noting how precautions are taken to keep dirt, air and moisture out of the refrigeration system and to prevent noise from being transmitted from the equipment into the living area.

Heater

... we meet a dealer whose conviction that *A Compromise Is A Sacrifice* when it comes to engineering requirements for duct heater installations is borne out by his enviable record of trouble-free installations. We see how this dealer uses his knowledge of the effect of moisture on the heat exchanger during the summer cooling season to specify a damper and bypass arrangement

For good looks...



for hard use...



choose Carrier!



The heater with a heart of Aluminized Steel

With Carrier Gas-Fired Unit Heaters and Duct Furnaces, you're better equipped to handle commercial as well as industrial jobs. Carrier units have the smart design that modern stores and offices demand, the dependability and performance features factories and garages want.

For example, only Carrier makes an all-welded heat exchanger made of 16-gauge Aluminized Steel. It far outlasts ordinary furnace steel of heavier gauge and ceramic coated metals. Carrier Gas-Fired Unit Heaters are available in 8 sizes, 50,000 to 230,000 Btu/hr; Duct Furnaces in 7 sizes, 70,000 to 230,000 Btu/hr. Look in your Classified Telephone Directory for the name of your Carrier jobber-distributor.

Carrier

Industrial heating • air conditioning • refrigeration

the editor's notebook

(continued)

with each duct heater installation. We note how four dampers prevent cooled air from passing over the heat exchanger and we inspect some of this dealer's installations to see how well his policy of no compromise pays off.

Building

... and we take a picture and word tour through the host city for the International Heating, Ventilating and Air Conditioning Exposition this month, to see *What's New in Chicago* in the way of construction. Described are huge heating, cooling and ventilating installations in several of Chicago's new and remodeled skyscrapers, incorporating miles and miles and hundreds of tons of duct work and calling on the utmost skill of the sheet metal craftsmen, who, it will be noted, are doing themselves proud in meeting the gigantic problems involved in such installations.

Promotion

... we recognize the value of advertising in a case history of a dealer whose *Promotion Campaign Reverses Slump On Sales Chart*. Here's a dealer who built a thriving business on promotion, then dropped his advertising and saw his business slide. This drop in sales was more than offset by a new carefully planned sales promotion program featuring a direct mail campaign emphasizing replacement, cleaning and service, and a heavy schedule of door-to-door canvassing to back up advertising built around manufacturers' sales promotion and selling aids.



You are cordially invited

...to come visit us and see
our complete line of distinctive
Air Conditioning Outlets

TITUS EXHIBIT

Booths No. 117 and 121

INTERNATIONAL HEATING & AIR
CONDITIONING EXPOSITION

Feb. 25-Mar. 1, 1957

INTERNATIONAL AMPHITHEATRE,
CHICAGO

Titus
MFG. CORP.

TITUS MANUFACTURING CORPORATION - WATERLOO, IOWA

**the editor's
notebook**

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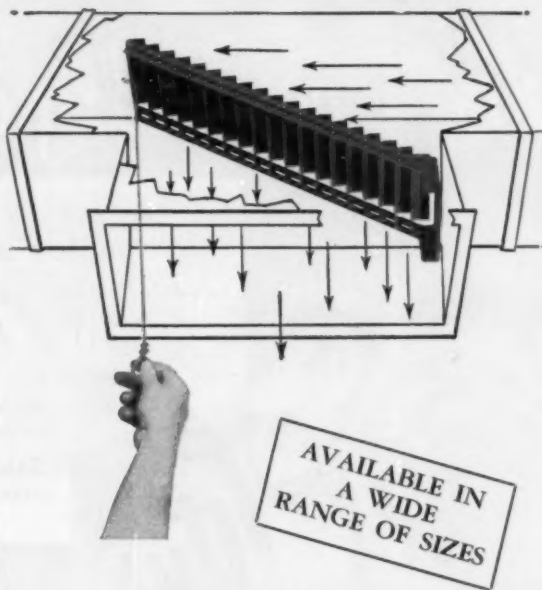
**Anniversary Booklet
Proves Stepping Stone**

FROM TIME TO TIME in these columns I've mentioned some of the public relations activities of Lou Narowetz, president of Narowetz Heating and Ventilating Co., Chicago contractor. Behind the scenes of many of the company's public relations activities was Lou Narowetz' daughter, June Jackman, who was responsible for the 40 page booklet published and mailed last year to all of the company's customers and prospects. The booklet outlined the firm's history and described many of the important buildings where the Narowetz company has handled the ventilating work. I was pleased to learn that Mrs. Jackman's talents have been recognized by a national association of painting and decorating contractors, who have appointed her to the position of public relations director. It would have been nice to have retained this talent within our own industry where it could be used so well. My congratulations to Mrs. Jackman and to her new employers.

**Visiting the Show?
See Artisan 'Guide'**

THERE'S SOMETHING new in the way of show directories in this issue. The staff of American Artisan has devised a "show guide" that will make it easier for those attending the International Heating & Air-Conditioning Exposition being held at the International Amphitheatre in Chicago February 25-March 1 to find their way around. This handy guide to the show is inserted just ahead of the 32 page show section where exhibitors are listed along with their booth numbers, representatives in

NOW... Divert Air Where You Want It!



AIR "EXTRACTOR"

This new A-J Air Extractor gives you maximum control of any forced air system. It's not a "damper type" control to meter available air flow through a grille, but a "scoop" that diverts air from the main duct to branch ducts or grilles and increases output over normal flow where needed.

The curved steel blades of the A-J Extractor are adjustable and act in unison to provide a controlled and uniform flow of air into branch ducts. A single key rod provides fast and easy adjustment through the face of a grille or register, and eliminates need for removal. The extractor is sturdily constructed, and fastened in the duct with two screws. Velocity of the air will not alter setting. Write for full information and prices.

FREE CATALOG

listing, describing and pricing 1,000 types and sizes of grilles, registers, etc.

A-J MANUFACTURING CO.

See us at Booth 621-623, 13th International Heating and Air Conditioning Exposition, International Amphitheatre, Chicago, Illinois, February 25 to March 1.

Dept. A-2

3601 E. 18th St.

Kansas City 27, Mo.

**the editor's
notebook**

(continued)

attendance and products on display. I suggest that you look the show section over carefully before going to the exposition, take out the "show guide," list the booths you want to visit, jot down the names of the people you want to see at the booths, and then fold the guide along the creased lines and carry it in your pocket. The "show guide" contains a diagram of the exhibition hall and by using the information contained in the 32 page show section you'll be able to plan your visit through this mammoth display of the industry's products more effectively and make better use of the time spent than if you leisurely wander back and forth along the aisles until your time for departure arrives. American Artisan has Booth 924, and we hope that it will be one of the stops you list on the new handy "show guide."

**Cites 10 Rules
For Business Managers**

THE FIGURE ten often seems to be a magic number. Perhaps it's because most of us can learn 10 items easily. People have used this figure many times to set up rules as they apply to a certain field. Now comes 10 rules for business managers. I believe there is a lot of good common sense in these rules. Mr. Lawrence A. Appley, president, American Management Association, listed them as:

- 1) Identify the people of an organization as its greatest asset.
- 2) Make profit in order to continue rendering service.
- 3) Approach every task in an organized, conscious manner so that the outcome will not be left to chance.

Beautiful New Norman Three-Sixty®



gas-fired, forced convection overhead gas heater, with

- EXCLUSIVE ELECTRIC IGNITION
- SEALED COMBUSTION SYSTEM

The all-new Norman Three-Sixty is the greatest improvement in overhead heating in 25 years. It has more exclusive features than any product in its field. And it has more to offer in beauty, economy, safety and comfort.

This new pressurized Norman unit features a sealed combustion system completely independent of room air. Exclusive electric ignition with no open flame exposed to the room makes the Three-Sixty safe for applications where an ordinary unit heater might create a hazard.

Smartly styled, this new Norman Three-Sixty with its attractive circular spun aluminum casing makes ordinary unit heaters obsolete . . . adds a touch of luxury to the most modern stores and shoppes.

In performance, the Norman Three-Sixty is even more outstanding. It assures an umbrella of comfort-

able warmth gently distributed outward and slightly downward in a full 360° radius. No hot blasts or cold spots.

Norman Patented Sealed Combustion System

All combustion air is drawn from outside through a separate inlet pipe . . . all exhaust gases are vented to outside through a parallel separate pipe. Fully automatic electric ignition eliminates pilot flame outage. No chimney needed . . . no problem of make-up air . . . no possibility of food contamination from products of combustion . . . no humidity or dust problem.

Phone, wire or mail coupon today for complete details.

See Booths
N231 and
N233
International
Heating & Air Cond.
Exposition

Norman® products
company



NORMAN PRODUCTS CO.
1164 Chesapeake Ave., Columbus 12, Ohio
Please rush complete details and literature
on the all-new Norman Three-Sixty.

NAME _____ TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

the editor's notebook

(continued)

- 4) Establish definite long- and short-range objectives to insure greater accomplishment.
- 5) Secure full attainment of objectives through general understanding and acceptance of them by others.
- 6) Keep individual members of the team well adjusted by seeing that each one knows what he is supposed to do, how well he is supposed to do it, what his authority is, and what his work relationships with others should be.
- 7) Concentrate on individual improvement through regular review of performance and potential.
- 8) Provide opportunity for assistance and guidance in self-development as a fundamental of institutional growth.
- 9) Maintain adequate and timely incentives and rewards for increase in human effort.
- 10) Supply work satisfactions for those who perform the work and those who are served by it.

Cooling Prescribed As Health Measure

MORE EVIDENCE that summer air conditioning has many advantages other than comfort alone was recently brought out by Dr. George E. Burch, Professor of Medicine at Tulane University. Dr. Burch reported in an article for the *Journal of Chronic Diseases*, "A hot and humid environment can increase cardiac work as much as strenuous physical exercise. The environment should, therefore, be made comfortable not only for the patient with heart



NEW! SHUR-FLO Draft Inducer-Regulator

Corrects Troubles Caused by Insufficient Draft!

Completely Engineered Combination Unit Sells for Much Less Than What You'd Expect To Pay!

Here's a new product that will correct any difficulty caused by insufficient draft...and correct it at a cost so low it's almost unbelievable!

The new Walker SHUR-FLO draft inducer-regulator combination both inspirates and regulates. After draft has been established by inducer fan, the sensitive automatic Walker regulator holds draft at maximum combustion efficiency. SHUR-FLO keeps chimney dry, stops pulsation and smoking, eliminates soot and odors.

Big Aid to Contractors and Installers

With the Walker SHUR-FLO, contractors and installers can eliminate draft troubles in both old and new housing with a single installation. The product is particularly effective in modern homes where the trend is toward lower chimney heights. Installation is simple, fast and requires only elementary wiring provisions in most cases.

Tests Prove High Efficiency

The Walker SHUR-FLO has been exhaustively tested by the largest and most prominent industrial research organization* in the world. Their findings show that this new combination unit operates at highest efficiency under even the most adverse conditions. The SHUR-FLO unit is constructed of heavy gauge galvanized steel. The motor is a heavy-duty, fractional HP that consumes little current. Motor is specially built for draft inducer service and is mounted so that it is shielded from chimney heat. Motor requires little maintenance. Regulator and inducer fan are both constructed of corrosion-resistant material.

*Name on request.

See our Booth No. 920 at the IH & AC Exposition
Chicago — February 25 — March 1.

WALKER MANUFACTURING & SALES CORP.

1730 Penn St.

St. Joseph, Mo.

the editor's notebook

(continued)

disease but also for aged people and for patients with illness which requires thermal regulation.

"This concept of air conditioning by prescription can, if properly exploited, prove of immense value to the air conditioning industry. Prospects who have previously decided against summer air conditioning as an expensive luxury might take a different viewpoint when they consider it as a therapeutic measure that might, conceivably, save their lives. The concept offers a broad new field."

Here is sales ammunition that can be used to prove that summer air conditioning is a necessity, especially for those who are in poor health.

Housing Costs Rise; Heating Prices Lag

HOUSING costs are going up, according to John M. Dickerman, executive director of the National Association of Home Builders, and he says the costs are very likely to continue to rise. To prove his point, he says, "Ready-mixed concrete prices are up 6.6 percent from a year ago; brick prices have shown a comparable rise and yellow pine lumber has shown a large increase.

"Other increases during the past year include plumbing equipment, up 9 percent; hardware, up 5 percent; plate glass and paint, up 4 percent. Hourly wages in the construction industry averaged \$2.76, an increase of 5 percent."

Notice that the heating and cooling industry is conspicuous by its absence from this list, which means that prices have remained steady or decreased. If every other industry is getting a share of the increased price of a house, it's only fair that the heating-cooling industry raise its

MIDCO'S *New* SIDE WALL PERIMETER DIFFUSER



PATENT NO. D179-140

No. 800 is the last word in sidewall perimeter heating. Has volume control adjustment. Furnished in 10"x6", 12"x6" and 14"x6" sizes.

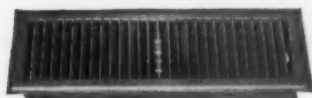
CONSIDER THESE EXAMPLES OF MIDCO'S *Complete LINE*



No. 900 OPEN TOP DIFFUSER

(Also made with closed top)

LENGTHS	FREE AREA
17 inches	30 sq. in.
24 inches	43 sq. in.
30 inches	54 sq. in.
36 inches	65 sq. in.



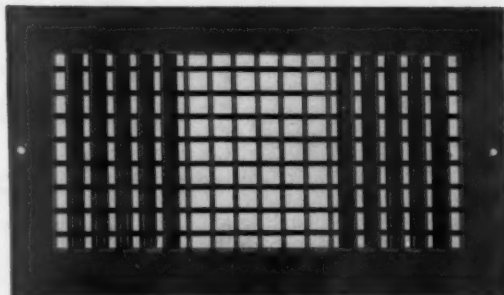
No. 512 PERIMETER FLOOR REGISTER

Sizes:

2 1/4 x 10	4 x 10	6 x 10
2 1/4 x 12	4 x 12	6 x 12
2 1/4 x 14	4 x 14	6 x 14

No. VHD COMMERCIAL MULTIPLE DEFLECTION REGISTER AND GRILLE

Aero dynamically correct 11/16 inch adjustable vanes give positive control of throw and flow.



MIDCO

REGISTER CORPORATION
1059 GRAND AVE. ST. PAUL 5, MINN.

Makers of over 6000 different register units

the editor's notebook

(continued)

prices — a lot — to catch up with the other costs involved in making a house a home.

Can't Make the Show? See Equipment Section

WE WISH all our subscribers could be reading this issue of *American Artisan* in Chicago while attending the International Heating, Ventilating and Air-Conditioning Exposition. Unfortunately, that's not always the way it works out. All is not lost, however, for those dealers who are unable to take the grand tour through the displays. Many of the new and improved lines which will be shown in Chicago are illustrated and described in 26 pages of *Artisan's Equipment Developments* section, beginning on page 182 of this issue. We cordially invite our friends at home to take a vicarious trip with us through the huge International Amphitheater inspecting features of new and improved equipment.

Association to Push Incinerator Sales

EVERYTHING costs more these days, even garbage collecting, which makes a ready market for the residential incinerator. Don Winegardner, chairman, Incinerator Division, Gas Appliance Manufacturers Association, and sales manager of the Majestic Co., says the association is planning to make its greatest effort to show the public the advantages of owning an incinerator. This move will help prepare the way for dealers to approach prospects and should help to close more sales along this line.

The approach, Mr. Winegardner says, will be along lines that will point out the air pollution woes created by

FOR OIL BURNERS GAS HEATERS AND AIR CONDITIONERS



FLUSH-TYPE LATCH by National Lock

check these convenience and
cost-saving advantages!

1. Mounts flush. Absence of projecting handle streamlines your product.
2. Simplifies cartoning and crating. Fewer protective pads required.
3. Operated by large coin or screw driver. No special tools needed.
4. Latch tongue can be adjusted in one simple operation.
5. Permits pre-shipment latch installation.
6. Provides worthwhile savings within your functional hardware costs.

Send for specifications and sample today

Look To This One-Source Supplier For
All Your Hardware Requirements
CATCHES • HANDLES • HINGES
PULLS • SCREWS • KNOBS
"KEPS" • "SEMS"

Write for Complete Information



NATIONAL LOCK COMPANY
Rockford, Illinois

the editor's notebook

(continued)

back yard burners which are being used in an attempt to reduce the amount of disposable trash which seems to be growing in volume annually.

Where to Read? Almost Anyplace

THE AMOUNT OF READING being done today is greater than at any time in the past, even with the increase in competition for a reader's attention by radio, television and sports events. This is evidenced by the increase in the number of magazines on the newsstand and the growing list of pocket editions being sold annually. All of this indicates to me that people realize the importance of the printed word and that even small items can provide an answer to problems that have required considerable thought to solve. There is also an added advantage that the printed word has over radio and television. It can be used at leisure. Anyone who has or wants to develop the reading habit will find there are lots of opportunities to read. Places where reading can be done and is done are — in the living room, in bed, at the office, in the shop, enroute between home and the office, on business trips, in waiting rooms, or even on vacations at the beach or on weekends under the apple tree. These are places that have been mentioned to me during interviews with subscribers to *American Artisan*. Each reader seems to have a favorite spot where he takes the *Artisan* each month to glean from it ideas and procedures that help him with his business problems.

Clyde M. Barnes

EDITOR



Dealers "in the know" recognize that this sign means:

"Quality Heating is being installed here"

• NIAGARA builds quality "year 'round air conditioning" equipment which will provide years of dependable service. Because of this quality, NIAGARA also builds profits for heating dealers.

NIAGARA furnaces are gas or oil fired and available in many capacities and models to fit practically every home heating requirement. If you want the "cream of the crop" there is no finer furnace than the NIAGARA Series 50. For economy purposes the quality-built NIAGARA Series 70 furnace "fits the bill".

Get the facts. Find out how NIAGARA offers you the opportunity to sell quality heating and build profits for yourself.

For complete information, write direct or contact your NIAGARA distributor.

NIAGARA FURNACE DIVISION

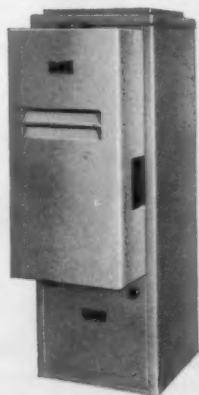
The Forest City Foundries Co.
2500 West 27th St. — Cleveland 13, Ohio

NIAGARA Series 50



The finest gas-fired furnace line available for home heating. Equipped with the exclusive NIAGARA cast iron heat exchanger and 3-speed blower. Completely automatic. NIAGARA refrigerated unit can be combined to provide the best in "year 'round air conditioning."

NIAGARA Series 70



The low-cost quality furnace line with High Boy, Down Flow and Basement Models. Completely automatic, gas or oil fired, available in a wide range of sizes.





THE NEW No. 1000 LINE SUPER BASE DIFFUSERS

NEW GRILLE DESIGN — MINIMUM RESISTANCE — INCREASED FREE AREA

LEADS IN POPULAR ACCEPTANCE — HAVE PROVEN THEIR SUPERIORITY



The NEW No. 1000 U.S. SUPER BASE-DIFFUSERS

Have Increased Free Air Opening — Reduced Resistance — Prevents Air-Notes at Higher Velocity Levels — Make Them the ALL-TIME LEADER.

Patent No. 2,551,775, 2,557

CUTS THAT LABOR — BALANCES THE SYSTEM

The No. 1000 U.S. BASE DIFFUSER has made friends of thousands of the Very Best FURNITURE SYSTEM CONTRACTORS. Each and Every Job is an Outstanding Recommendation and Assists in Further Sales. EASIEST TO INSTALL of All Base Diffusers.

ACTUAL PROOF OF PERFORMANCE That You Can Believe.

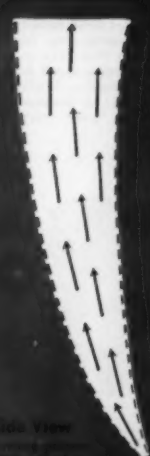


Cross Sectional
No. 1000

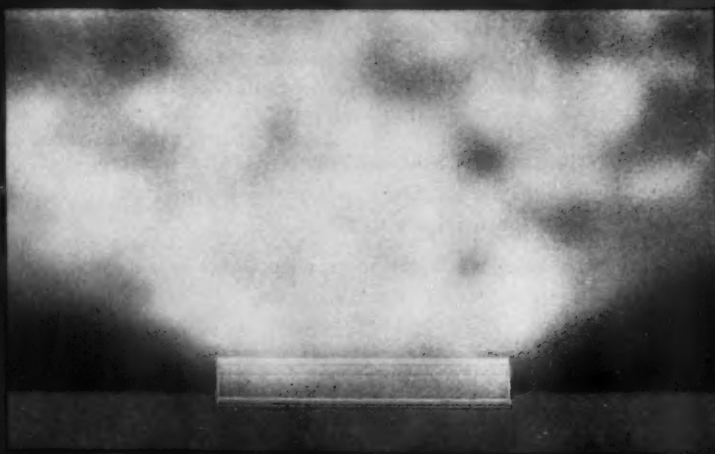
EASY TO
INSTALL

A—Dampen Control
Lever
B—Screw for Set-Back

D—Depth of Diffuser
2 1/2"
H—Height of Diffuser
3 1/2"



Side View
Showing pattern
of air flow and
distribution

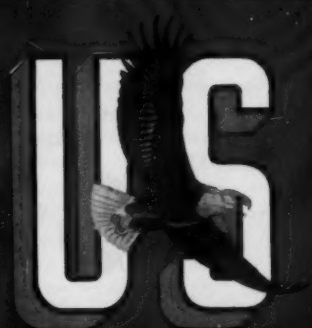


Front View of No. 1000 Style Showing Air Spread and Flow

BE SURE

For Complete List Prices and Performance Data See Next Page.
In my list now No. 2000 Furniture matches with your next order.
Your dealer will have them or put them in stock immediately.

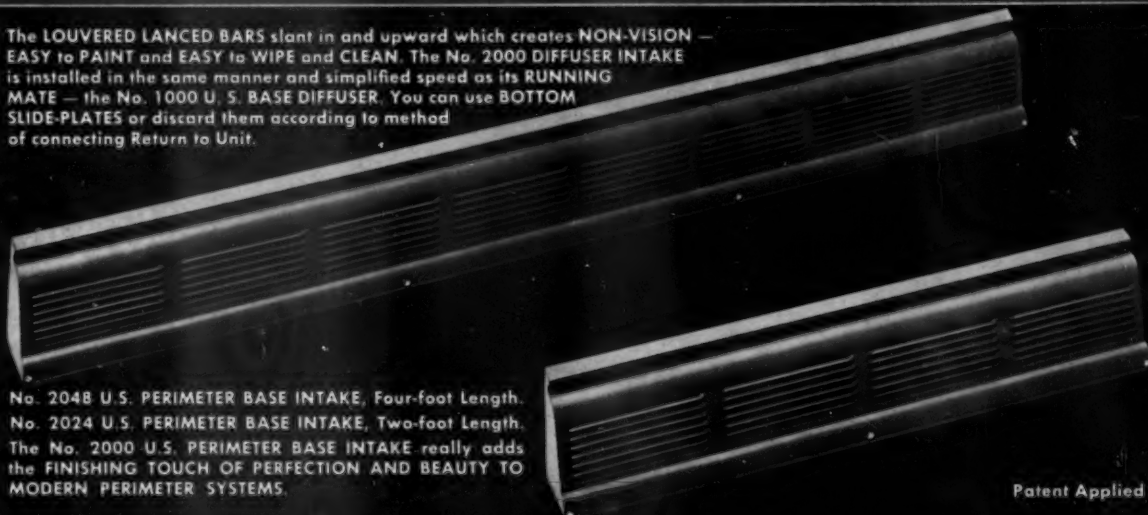
THE NEW No. 2000 LINE PERIMETER BASE INTAKES



IT BLENDS IN WITH THE STYLE OF THAT WONDERFUL NO. 1000 BASE DIFFUSER

MADE IN TWO SIZES: TWO-FOOT — NO. 2024; FOUR-FOOT — NO. 2048

The LOUVERED LANCED BARS slant in and upward which creates NON-VISION — EASY to PAINT and EASY to WIPE and CLEAN. The No. 2000 DIFFUSER INTAKE is installed in the same manner and simplified speed as its RUNNING MATE — the No. 1000 U. S. BASE DIFFUSER. You can use BOTTOM SLIDE-PLATES or discard them according to method of connecting Return to Unit.



No. 2048 U.S. PERIMETER BASE INTAKE, Four-foot Length.

No. 2024 U.S. PERIMETER BASE INTAKE, Two-foot Length.

The No. 2000 U.S. PERIMETER BASE INTAKE really adds the FINISHING TOUCH OF PERFECTION AND BEAUTY TO MODERN PERIMETER SYSTEMS.

Patent Applied For

The No. 105 U.S. DIFFUSER SIDE WALL REGISTER

DIFFUSES a FULL SUNBURST Pattern — A Complete 180° of EVEN AIR-FLOW at Every Degree of Diffusion. Single Valve — Complete with Set-Lock — Three Sizes. LOWEST RESISTANCE — Yet MOST POWERFUL of SIDEWALL DIFFUSERS for Perimeter Air-Conditioning Systems. GREAT for Combination Warming and Cooling Perimeter Systems.



No. 410 U.S. DIFFUSER FLOOR REGISTER

Its Deflecting Valve Protects the Walls and Corners — Deflects the Air up and Away from the Wall — Set-Locks in the desired Position — Has Graduated Flow. Get the No. 410 — IT COSTS NO MORE.



GO AHEAD WITH U.S. IN 1957

MEET US IN CHICAGO — MEET US AT THE SHOW — BOOTH NO. 1036



BEST OF EVERYTHING IN REGISTERS AND GRILLES — WRITE FOR LATEST CATALOG

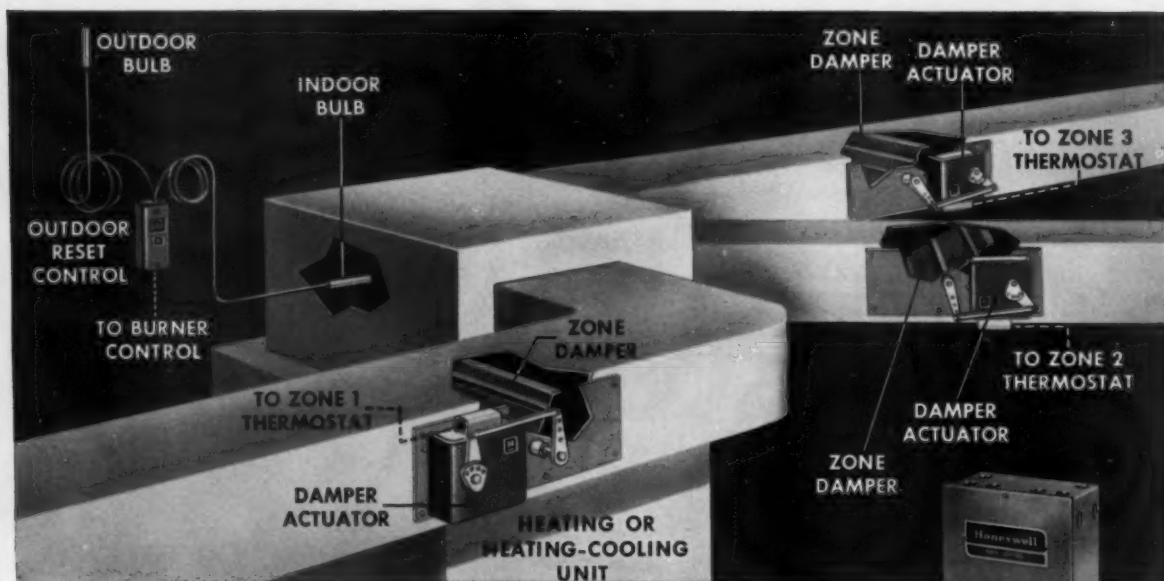
UNITED STATES REGISTER COMPANY

BATTLE CREEK, MICHIGAN

MINNEAPOLIS • KANSAS CITY • ALBANY

6 BIG PROBLEMS ONE PROFITABLE

...Honeywell Zone



ZONE WIRING PANEL

easily and simply inter-connects all controls.



You can offer zone rebalancing in two or more zones—to fit any need. Honeywell Zone Rebalancing will work with all types of forced air heating-cooling installations—all types of standard or custom homes. Key to the whole system is a Honeywell *Modulating Damper Actuator* for each zone. This actuator operates separate dampers in each of the zone ducts to continuously increase or decrease heated or cooled air volume as called for by the thermostats.

No other system gets as much comfort and efficiency out of a heating-cooling unit. You'll be way ahead in customer satisfaction with this complete heating-cooling job.

WITH ANSWER

Rebalancing

1. Convection between floors in split-level homes
2. Underheated finished basement
3. Spread-out floor plan with exposure differences
4. Controlling supply of heating-cooling to living and sleeping
5. Variable heat gain and loss through picture windows
6. Discomfort in rooms over unheated areas

Any home with any of these 6 comfort problems needs Honeywell Zone Rebalancing—it's the ultimate answer to central heating or heating-cooling installations.

Honeywell Zone Rebalancing means dividing the home into two or more comfort zones. The thermostat in each zone continually adjusts the distribution of heating or cooling to maintain the exact comfort requirement of each individual zone. It's an inexpensive yet unique comfort feature that will enable you to realize an extra profit margin on every job.

Choose from the complete line of the world's most popular thermostats. Here are two examples—



T 86, for heating



T 87, for heating-cooling

MINNEAPOLIS
Honeywell

For complete information on the new Honeywell Warm Air Zone Rebalancing System or details on wet heat zoning equipment, call your local Honeywell office. Or write direct to Honeywell, Dept. AA-2-30, Minneapolis 8, Minn.



Zone Rebalancing

112 offices across the nation

Five easy steps to install the new actuator-damper package which includes the new Honeywell D522A damper, M829 actuator with linkage and the Q401A mounting plate.



Step 1—Determine where the damper is to be mounted and measure for the front and rear bearing surface. Honeywell Zone Rebalancing kit contains all necessary installation parts.



Step 2—By using the cardboard template provided, the damper slot can be cut out quickly and easily.



Step 3—Next, cut the damper to the proper length. The adjustable type damper provided with every kit can quickly be cut to fit any duct easily.



Step 4—Drive the pointed damper shaft through the far side of the duct and insert damper. The mounting plate on the cutaway side is then quickly and easily fastened to the duct to hold damper in position.



Step 5—Mount the Honeywell Actuator on mounting plate and connect the linkage to the damper shaft. The simple, low-voltage wiring is then run to the wiring panel and thermostat to complete the installation.



EARL LIST
Hinsdale Home Heating, Inc.
Hinsdale, Illinois

"Give me Milcor Standardized Fittings every time!"

You can stake your reputation on a Milcor installation...

"All pieces are precision made and fit together easily. You get snug, good-looking jobs that stand up for years and remain a credit to your name.

"You save money, too, by buying Milcor Furnace Pipe and Fittings. And

they're well packaged—easy to handle and keep track of in the shop."

Are you enjoying the advantages of Milcor Standardized Fittings? Call your jobber for prices, or write the nearest branch listed below.



NEW!

Offset End Boot No. 738

For a better fit
against a wall.

MILCOR®



INLAND STEEL PRODUCTS COMPANY • Dept. N. 4023 West Burnham Street • Milwaukee 1, Wisconsin
ATLANTA • BALTIMORE • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER
DETROIT • KANSAS CITY • LOS ANGELES • MILWAUKEE • MINNEAPOLIS • NEW YORK • ST. LOUIS

SBA Protests Proposal by SEC

A PROPOSAL by the Securities and Exchange Commission to revise its Regulation A to tighten up financing by small business has resulted in a strong protest from Wendell Barnes, administrator of the Small Business Administration.

The SEC proposes to limit financing by public sale of securities to companies that are able to show at least one year of profitable operation. Regulation A concerns issues of securities that do not exceed \$300,000 in amount.

In his protest, Mr. Barnes pointed out that many profitable businesses have developed after suffering initial losses over a period of years. He argued that to require success before being allowed access to capital is to put the "cart before the horse."

The U.S. Chamber of Commerce in commenting on the SEC proposal said, "It apparently was not the intent of Congress in passing the Federal Securities Act that in protecting the investing public against fraud the SEC should attempt to remove all risk from equity investing. It is the very function of equity capital to assume risk and it is this very risk that justifies the higher financial reward possible from this type of investment."

President Praises Year's Achievements of oh

PRESIDENT Eisenhower has commended Operation Home Improvement on its achievements during 1956 and expressed hope that it will see continued progress in 1957.

The President said, "The modernization of our people's dwelling places has the wholehearted support of federal, state, and local governments. These, working with homeowners in cooperation with private industry, will make 1957 a banner year for Operation Home Improvement."

ASHAE Expects Record Show In Size and Attendance

NEARLY 500 displays will occupy all available space on the first floor of Chicago's huge International Amphitheatre, as the 13th International Heating and Air-Conditioning Exposition gets underway Feb. 25 to Mar. 1. The exposition is held in conjunction with the annual meeting of the American Society of Heating and Air-Conditioning Engineers.

New products and equipment and new exhibitors have swelled the exposition to the largest of its kind ever held. The flood of applications

resulted in a 15 percent increase in space over the original plan.

Record attendance is also expected as engineers, architects, and dealer-contractors gather from all over the nation to see and make plans for the future.

Leading manufacturers of complete heating, ventilating, cooling and air conditioning systems for all types of uses will be represented among the exhibitors. Also exhibiting will be producers of raw and fabricated materials, special equipment and component parts.

A special Show Section in this month's Artisan gives the name and location of each exhibitor, a list of equipment on display, and also the names of the people who will be in attendance at the booths. Inserted at the beginning of this Show Section is a handy guide card showing the location of every aisle and booth. The card can be removed and folded to pocket size. A person touring the exposition may carry the card with him and mark the booths he wants to be sure to visit.

Defends FRB's Credit Policy

CREDIT POLICY of the Federal Reserve Board, which has been under attack, was defended by Dr. Emerson P. Schmidt, director of economic research, Chamber of Commerce of the United States.

"Credit restraint exercised by the Federal Reserve is designed to attain reasonable stability in the over-all price level," Dr. Schmidt said. "Considering the pressures on our economy, it has done a magnificent job, but evidently a very thankless job, considering the number of people who criticize it for credit tightness or credit scarcity."

Dr. Schmidt said that credit actually has not been tight. "The amount of borrowing and lending that has gone on in the last year is probably at a new peak," he stated.

"If the credit restraint program had been relaxed, even moderately, we would have done a little more business in dollars but very little more in real terms," Dr. Schmidt declared.

"One of the hardest lessons for the people of modern democracies to learn," he said, "is that an economic system can be overloaded or overburdened."

Offers Check List for Community Studies

TO ENCOURAGE industrial and business expansion in local areas, many communities have conducted surveys to discover facts about business costs. As an aid to local groups making such studies, the U.S. Chamber of Commerce has prepared a "Check List of Factors Affecting the Business Climate."


This check list covers eleven broad problem areas and includes 86 specific questions to ask in determining where a particular community stands.

The check list may be obtained from the Economic Research Department, Chamber of Commerce of the United States, Washington 6, D. C.

See this comfort makes 'em forget




system that about PRICE!

 **See Waterbury Comfortrol®
at the Show ★ Booth 448**

INTERNATIONAL HEATING AND AIR CONDITIONING EXPOSITION—CHICAGO, FEB. 25 TO MAR. 1

See how to get the profits you deserve!

 ▶ **"SELLING IN THE HOME" PLAN**—most complete in the industry to help you nail down replacement sales! Reports from dealers prove this sales plan increases volume 30% to 200%!

▶ **LOCAL AND NATIONAL ADVERTISING PLAN**—biggest in Waterbury's history! Newspaper, magazine, TV and radio ads that build your business!


▶ **OUTDOOR DISPLAY PLAN**—color-filled posters, signs, decals, put your name before everybody!

▶ **INDOOR DISPLAY PLAN**—windows, walls, counters come alive with selling-by-telling displays!

▶ **DEALER EDUCATION PLAN**—year 'round field conferences, factory schools keep you up-to-date on everything you need to sell!

▶ **GAS AND OIL UNIT SALES PLAN**—most complete quality line ever! New, modern styled, compact, assembled units backed up by diamond hard promotions that make your prospects forget about price!

▶ **SUMMER COOLING SALES PLAN**—new complete line, new complete promotion means you are bound to heat up cooling sales!

 **See Stuart Smith at the Show**

SALES MANAGER, WATERMAN-WATERBURY

Stuart will give you full facts on how you can build a more secure and profitable business by next year at this time! You'll hear how Waterbury holds dealers through their satisfaction with its designs, its materials and its way of doing business. Let Stuart tell you how you can match your progress with Waterbury's. It's your golden opportunity in Waterbury's golden year!

GO, GO, GROW WITH



Waterbury

WORLD-FAMOUS

FURNACES AND AIR CONDITIONERS

1122 N.E. Jackson St., Minneapolis 14, Minn.



Debate Continues on 1957 Home Building Outlook

FORECASTS of total new house starts for 1957 range from a low of about 800,000 units to a high of 1,100,000. The latter figure would equal the 1956 rate.

Albert M. Cole, federal housing and home finance administrator, leads the list of those who expect construction to be maintained at last year's level. This optimistic outlook is shared by John F. Austin, Jr., president of the Mortgage Bankers Association of America.

The president of the U. S. Savings and Loan League, Roy M. Marr, said that all signs point to a sufficient supply of mortgage funds to build 1,100,000 homes this year.

Nat Rogg, economics director, National Association of Home Builders, said that although home building in 1957 will have a slow start, there is a possibility of a pick-up somewhere along the way. If so, Mr. Rogg felt that housing starts would come close to the 1956 level.

A number of predictions, however, see a further decline coming up. George W. Greenwood, president of the National Savings and Loan League, predicted 1,000,000 houses would be started this year and called for efforts to "stop the slide in housing."

Sinclair Weeks, secretary of commerce, also predicted about 1,000,000 starts in the current year. Joseph B. Haverstick, president of the National Association of Home Builders, sees a strong market and enough mortgage credit available for another million or more new homes during 1957.

The gloomiest forecast was presented by a group of 40 leading builders to government officials in Washington. These builders saw a drop this year to 900,000 units, and predicted a further drop to as low as 800,000 if credit conditions were permitted to grow worse.

Meanwhile, Congress and the administration studied steps to increase the amount of credit available for new housing. An increase in the top interest rate on GI home loans appears likely, and pressure is growing for additional direct government lending.

Numerous bills have been introduced in Congress affecting the home building situation. Sen. Hubert Humphrey and Rep. Wright Patman introduced measures to provide up to \$3 billion for purchasing GI home loans at par. The purpose of this action would be to strengthen the market without a boost in interest rates.

Another bill with similar intent was introduced by Chairman Olin Teague of the House Veterans Affairs committee. It would provide \$1 billion for direct loans or to purchase

(Continued on page 30)

Los Angeles Gets New Heating Code

NEW WARM AIR furnace regulations have been placed into effect in Los Angeles to insure home owners more efficient and safer heating. The new regulations were drafted with the voluntary cooperation of the local heating and air conditioning industry. Technological details are being worked out with the practical assistance of heating dealer-contractors and manufacturers.

A. B. Wicks, chief of the heating division, Building and Safety Department, said that furnaces installed in Los Angeles now must have air for combustion piped in from the outside or be so situated that an adequate combustion air supply is available from the attic. Present city requirements for air which a furnace circulates throughout the house are adequate, he said.

Seeks to Determine Value of Marketing

A PROPOSAL made by the U.S. Chamber of Commerce offers a means for determining the value added to goods by the marketing services of wholesalers and retailers.

The proposal would give further recognition to the fact that products have no value until they have been made available where and when the customers want to buy them, and in amounts the customer expects to be able to use.

Without this distributive or marketing process, the National Chamber asserts, "our economy would collapse overnight."

To determine in dollars and cents the value added by marketing, the National Chamber recommends the following method: subtract the cost of the goods sold, supplies, containers, and purchased energy from net sales or operating costs.

The Chamber proposes that this statistic be collected from wholesalers and retailers by the U.S. Bureau of Census.

Apprenticeship Training Gains Recognition

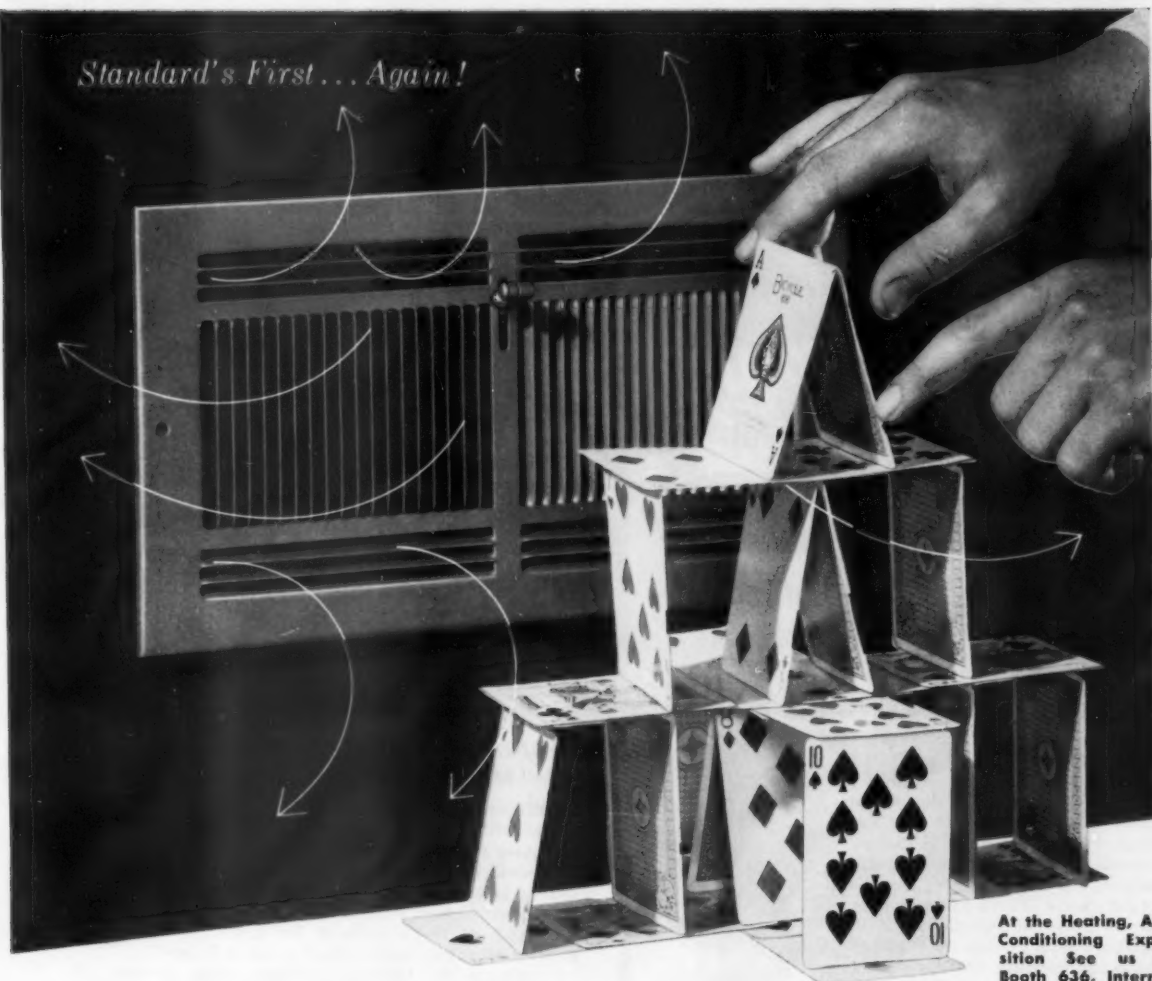
W. C. CHRISTENSEN has been named director of the Department of Labor's newly established Bureau of Training and Apprenticeship. The bureau combines the activities of the Bureau of Apprenticeship with other labor department training services. The move gives new recognition to the apprenticeship program.

Edward E. Goshen has been named executive director of the combined operation.


Mr. Christensen had been deputy director for operations of the Apprenticeship Bureau since 1954. He is also a past president of the American Society of Training Directors.

Mr. Goshen was previously deputy director for national industry promotion.

Standard's First... Again!



At the Heating, Air-Conditioning Exposition See us at Booth 636, International Amphitheatre.

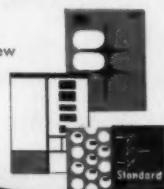
there's no trick  to it!

*if you use **Standard's No. 551**...no blasts, no hot spots, no cold corners!*

Standard's Perimeter Wall Register (No. 551) ends hot air blast and spotty heating for all time. Its 4-way, 360° diffusion of air provides complete hemispheric heating and cooling comfort. Warm air is distributed evenly along the outer cold walls, resulting in uniform temperature control throughout each room.

- NEW FRACTIONATOR VOLUME CONTROL • STANDARD SCREW HOLES • SINGLE SHUTTER CONTROL
- SMART APPEARANCE • FOR SIDEWALL OR BASEBOARD INSTALLATION
- ACCLAIMED BY THOUSANDS OF HOME AND COMMERCIAL BUILDING OWNERS

WRITE NOW! See for yourself why the Standard 551 is the best perimeter wall register on the market! Mail the coupon for copies of testimonials and case histories of people who are enjoying real indoor comfort with Standard's new 551 Registers. We'll rush them to you free, along with descriptive literature.



**STANDARD
STAMPING
& PERFORATING CO.**



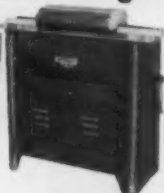
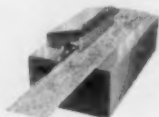
NAME _____
 ADDRESS _____
 CITY _____
 STATE _____
 ZIP _____
 I am interested in the Standard No. 551 Perimeter Wall Register.
 Please send me descriptive literature and testimonials.

see all this
LOCKFORMER
 equipment at the show!

don't miss the
 opportunity to inspect
 the complete line of
LOCKFORMER models
 and special equipment
 on display!

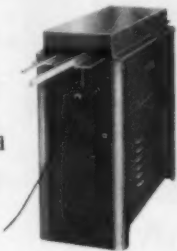
LOCKFORMERS

Five different models to choose
 from PLUS the new Super-Speed 20 . . .
 Capacities through
 14 gauge.



THE CLEATFORMER

An extremely versatile machine
 capable of turning out just about
 every type of cleat needed in any
 shop. The double hem "S" Cleat
 provides greatly increased rigidity,
 permits the use of lighter metal and
 longer cleats. Three other shapes
 can be made on a single set of
 auxiliary rolls merely by shifting
 the guide position.



STANDING "S" MACHINE

Combines a conventional "S"
 Cleat with a standing seam in
 one pass through the machine!
 Particularly adapted for fabri-
 cating large trunk or branch lines
 in industrial heating and ventilating
 units where there is need for much
 greater strength and rigidity than is found
 in a simple "S" Cleat. Extended shafts provide
 for other special forming operations.



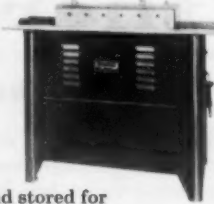
SLITTING ATTACHMENTS

Installed in 10 minutes on any Lockformer 20,
 22 or 24, shear 30 to 35 feet per minute
 from 20 gauge or lighter material—
 shear as little as 1/4" or up to 24"—
 handle any slitting job on sheets
 as wide as 48". Also available
 with own power units, with
 or without floor stand.



SNAP LOCK MACHINE

Designed and priced for the sheet
 metal shop, fabricates both
 receiver lock and offset lock for
 both round and square duct from
 24 to 30 gauge material. Snap
 Lock is made flat with no restric-
 tions on diameter of pipe or size
 of duct, and work is easily nested and stored for
 assembly on the job. Reeves type and other snap
 lock rolls available upon request.



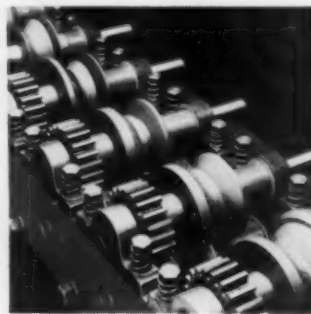
EASY EDGER

Turns a 1/8" flange on an inside
 radius as small as 1 1/4" in one
 operation. No gauges to set.
 Machine cut steel gears, heat
 treated rolls. Small, rugged, easily
 portable and practically inde-
 structible. Furnished with or
 without stand.



AUXILIARY ROLLS

Make any Lockformer
 into a multi-purpose
 machine. Custom rolls
 made to fill your specific
 requirements. Easily
 attached or detached with
 absolutely no interference
 with built-in Pittsburgh
 Rolls.



PLUS THE NEW...

LOCKFORMER **AUTO-GUIDE** **POWER FLANGING** **ATTACHMENT**

... follows any edge you feed it ... **AUTO-MATICALLY!** Straight, irregular, inner or outer radii ... turns a perfect flange *every time!*

You'll profit in more ways than one with Lockformer's new Auto-Guide Power Flanging Attachment. All of the famed Lockformer experience and know-how in making such special equipment have been built into it, yet it's so easy to own and operate that no sheet metal shop should be without one. Available for Lockformer models 20, 22 and 24.



Quick Facts...

capacity

20 gauge or lighter

flange height

Approx. $\frac{1}{2}$ " outside height

flange radii

$3\frac{1}{4}$ " minimum radii (Auto-Guide)

speed

16-18 feet per minute

● **FEATURES:** Calibrated dial indicates gauge to which Auto-Guide Flanger is adjusted. Simply "dial" the gauge you are working and feed straight sections or irregular, outside or inside curves without further adjustment. The Auto-Guide feature can be locked out, if desired, so that special sections with radii smaller than $3\frac{1}{4}$ " can be run.

Two Auto-Guide models are available—one for use with Lockformer Models 20 and 22, the other for use with Lockformer Model 24. Each Model fits both the old and the new Lockformers of the gauge or model number indicated.

There are no delicate parts to wear out or cause trouble and both Auto-Guide Models incorporate all the heavy-duty construction features for which Lockformer Equipment has long been famous. You can count on them for long life, negligible maintenance, plus day in and day out dependability.

THE LOCKFORMER CO.

4615 W. ROOSEVELT ROAD, CHICAGO 50, ILLINOIS

Remote condenser? Tricky sequence? Name your residential cooling control problem.

SOLVE IT AUTOMATICALLY WITH HONEYWELL "CUSTOM CONTROL" FOR AIR CONDITIONING!

- Any switch and thermostat combination you want
- Any sequence of operations to meet any heating-cooling need
- All in one simple, easy-to-stock, easy-to-install system
- All part of Honeywell's "Custom Control" Air Conditioning —
most complete line of residential controls in the industry!

HONEYWELL "Custom Control" Air Conditioning means you can give your customer *exactly* what he wants for any heating or heating-cooling need.

You also offer your customer famous Honeywell quality and time-tested components. And *you* take advantage of the best field service in the industry, backed by years of engineering experience.

Get full information on the complete line of

Honeywell Control Panels for air conditioning. Call your local Honeywell office or write to Honeywell, Minneapolis 8, Minnesota.

Honeywell Round—World's most popular thermostat

This rugged and sensitive thermostat, available with a choice of Honeywell sub-bases, offers the most versatile control combinations possible.





Taking easily removable sub panel from box without breaking conduit connections for field servicing or replacement. Note new Honeywell-built contactor.

CHOOSE FROM A WIDE VARIETY OF OUTSTANDING CONTROL PANELS— ALL WITH EXCLUSIVE SIMPLIFIED WIRING*

For larger packaged units or for year-round combination heating-cooling systems, the WA 212 (shown above) provides either automatic or semi-automatic control up to 40 amps. Adaptable to both air cooled and water cooled condensers, this rugged, versatile panel covers all applications from 2 to 10 HP.

For smaller cooling compressors—the R 447 (line voltage controller) and R 847 (low voltage controller) provide economical control for ½ to 2 HP compressors up to 22 amps.

For remote condensing sections—the W 400 (for heavy

duty) or the R 847B (for light duty) mounted outside on condensing section, with the W 226 (sequencing panel) mounted inside the house provide custom control for remote type air conditioning systems.

For 2-Ton packaged air conditioners—The W 402. Designed specifically to meet the needs of packaged units up to 2 HP.

**Honeywell's exclusive Simplified Wiring is the result of improved engineering design that permits factory wiring of the heating-cooling circuit. It means less installation time, longer trouble-free service.*

*For more information
call or write Honeywell, Dept. AA-2-23,
Minneapolis 8, Minnesota.*

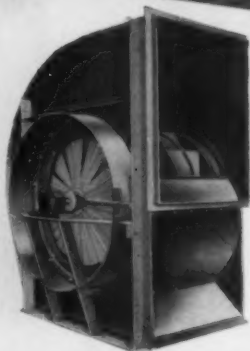
MINNEAPOLIS
Honeywell

Air Conditioning Controls



112 offices across the nation

CLARAGE...



Ventilating and Air Conditioning Fans Type NH Fans (shown) with backwardly inclined blade wheels, capacities 1,000 to 725,000 cfm. Catalog 221. **Type HV** Fans with forward curved multiblade wheels, capacities 150 to 450,000 cfm. Bulletin 200.



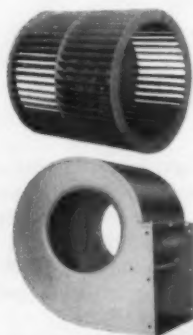
Air Washers Capillary (shown) and **Spray Type Air Washers** for air cleaning and purification. Catalog 405 for Capillary type; Catalog 400 for Spray type.



Ready Unit Ventilating Sets Complete, ready-to-run units for smaller air handling requirements. Catalog 515. Direct connected and V-belt models in 18 sizes, capacities 100 to 14,000 cfm. Bulletin 500.



Sprayed Coil Units Uni-coil Units designed principally for cooling and dehumidifying service in central station air conditioning systems. Catalog 411.



Fan Equipment for Conditioning Units Type DF wheels and housings, or complete fans for air conditioning units, cooling towers, evaporative condensers, etc. In 11 sizes from 250 to 10,000 cfm. Catalog 603.

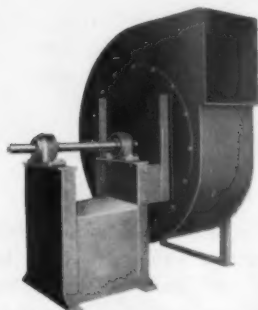


CLARAGE FAN COMPANY

dependable equipment for making air your servant



Industrial Exhausters and Blowers Type CI Exhausters (shown) with capacities 200 to 3,800 cfm, pressures to 22". Catalog 705. Type O Blowers with capacities 150 to 45,000 cfm for higher pressures. Bulletin 850.



Industrial Air and Material Handling Fans Type XL Fans range up to 130,000 cfm, 18" SP, 60" inlet diameter. Four wheel types, 16 fan sizes—smaller sizes adjustable as to discharge. Bulletin 702.

NEW

See it at the Show

Booth 817-821



Introducing . . . the new Clarage Centrilator, a centrifugal type Power Roof Ventilator, with an exclusive Clarage Jet Siphon feature for quiet performance, high efficiency. Self-contained, exceptionally rugged, low silhouette, economical in all respects. Ten standard sizes with capacities to 26,400 cfm. Request Bulletin 550.

The Clarage line also includes Unitherm Unit Heaters with multiblade fans . . . Clarco Unit Heaters with propeller fans . . . Unit Stoker Fans in a wide size range . . . Propeller Fans with capacities 700 to 36,000 cfm . . . Vortex Control for efficient, economical air volume regulation . . . Mechanical Draft Fans. By specializing — building air handling and conditioning equipment *exclusively* — Clarage has a concentrated "know-how" that means important dividends for you.

KALAMAZOO, MICHIGAN

Gas Industry Expects to Heat 11.5 Million More Homes

HOUSE HEATING customers of gas utilities will jump from 16 million today to 27.5 million by 1965, the American Gas Association estimates. This would be an increase of 11.5 million over today's figure.

Gas-heated homes represented about 46 percent of the more than 49 million occupied homes and apartments in the nation as of mid-1956.

A major gas industry development during the past year was the completion of the \$230 million pipeline from the Southwest to the border of Canada to bring natural gas to the Pacific Northwest for the first time. This is the last large region of the U.S. to receive natural gas.

AGA also reported that the association and manufacturers spent \$1.5 million in 1956 alone to develop gas summer air conditioners. At least ten manufacturers are reported to be producing or developing gas cooling units.

Gas-fired warm air furnace shipments in 1956 approximated 829,000 units, compared with record shipments of 835,000 in 1955. Conversion burner shipments totaled 198,000, a slight decrease from 209,100 in the previous year. Shipments of wall heaters and floor furnaces also saw small declines last year.

Total shipments of gas central heating equipment were about even with the 1955 peak, and the 1,125,000 units shipped in 1956 established gas as the number one heating fuel in the nation's homes, according to AGA.

Manufacturers of automatic gas water heaters shipped 2,837,000 units last year, a new record. AGA noted that the increased volume is accompanied by a marked upgrading in size and quality.

Makers of gas incinerators were reported to have enjoyed a satisfactory year. A rapid increase in de-

mand for these units is expected, due to new and improved models, increased merchandising by utility companies, a growing understanding on the part of municipal officials, and the increasingly acute disposal problems in many communities.

The industry also announced plans for increased promotional activity during the coming year. Highlighting this program is the industry's first venture into network television. The industry started sponsorship of one of the leading dramatic programs in January.

AGA also plans to continue sponsorship of the Mrs. America contest, to be held in 1957 at Ft. Lauderdale, Fla.

Home Building Debate Continues

(Continued from page 22)

GI mortgage loans at par. Mr. Teague also offered a bill to extend the VA's direct home loan program until July 1958 and to allow the agency to lend \$300 million in carry-over funds previously authorized by Congress.

Rep. Teague also introduced legislation to cut the down payments required under the FHA mortgage insurance program. The bill would also raise the ceiling on these mortgages from \$20,000 to \$30,000.

Another bill by Sen. Humphrey prohibits discounts on home loans insured by the VA. By discounting, less than the face value of the loan is made available to the borrower, which in effect provides a higher rate of interest.

The President's budget message to Congress asked for a boost in the VA interest rate and an additional \$100 million in capital for the Federal National Mortgage Association, which buys mortgages from lenders.

Sales Of Heat Pumps Hit 7000 in 1956

AN ESTIMATED 7000 heat pumps were sold during 1956 for year 'round air conditioning use, according to a Wall Street Journal report.

Industry executives were cited as predicting sales of more than 200,000 units a year by 1965.

Electric power companies have been actively promoting the use of heat pumps in many sections of the country.

One major utility has a staff of specialists who will design heat pump systems for architects, engineering firms, and builders without charge. It has also been promoting sales through lectures to clubs and science classes and through open houses.

Other power companies are presenting heat pump talks to civic clubs, presenting heat pump shows, distributing literature, and helping dealers estimate power costs on specific jobs.

A number of manufacturers were reported to have increased their production facilities for heat pumps.

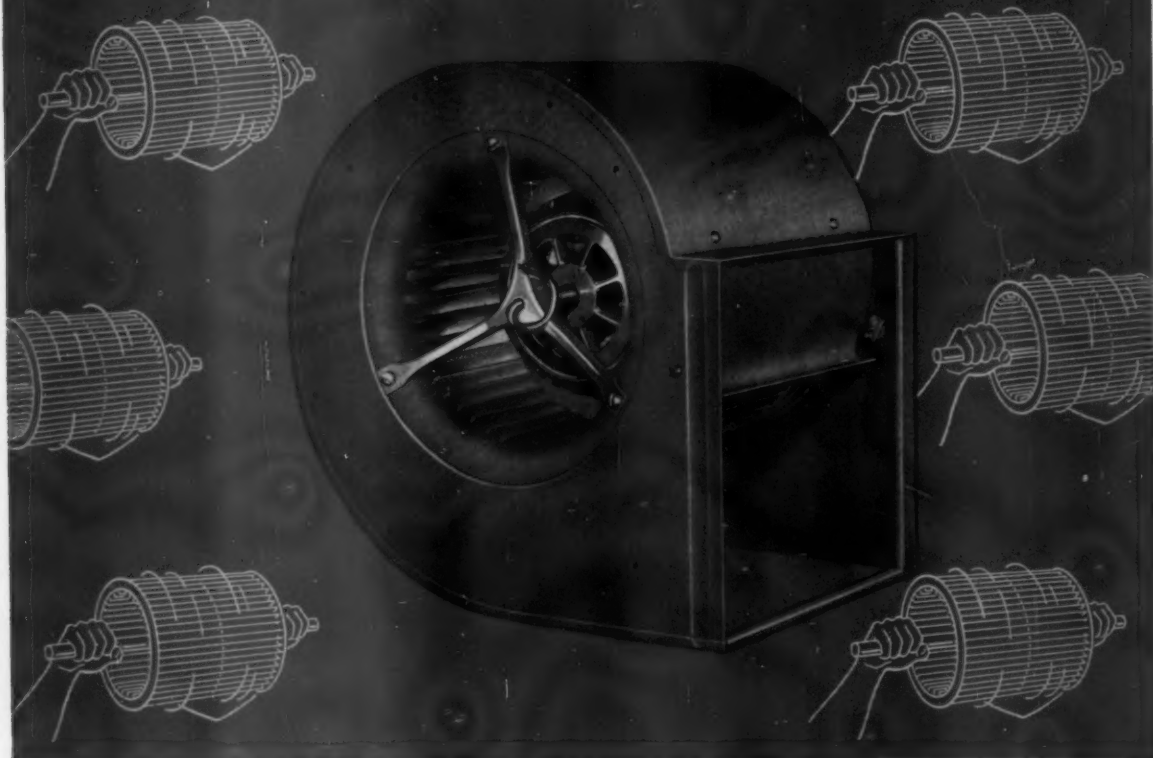
Porcelain Enamel Use Grows for Curtain Walls

A GROWING acceptance of porcelain enamel curtain wall construction by architects and builders was noted during the past year by the Porcelain Enamel Institute.

The Institute reports that the use of architectural porcelain enamel in the construction field has shown a substantial and notable increase. In 1956 total dollar volume for the product in construction use is estimated at \$60 million, an increase of more than 20 percent over the volume for 1955.

A further increase of 10 to 12 percent is predicted for 1957 by the Institute. It also looks for increased application of porcelain enamel on such products as summer air conditioners and heating equipment.

The Lau Exclusive Patented ELECTRO-WHEEL BLOWER



Quiet, Trouble-Free Efficiency Is Yours With Electro-Wheel



Are you interested in a blower unit that practically eliminates the need for service . . . delivers more air against higher statics . . . operates more quietly . . . and is more compact? *Electro-Wheel gives you all this, and more!*

The torque from the split capacitor motor is delivered directly to the rotor wheel. Electro-Wheel thus eliminates bearing and shaft journals, belt and pulleys . . . and resulting efficiency losses. *Take out all these moving parts and the need for service is virtually eliminated! Much quieter, too!*

The bearing bracket is inverted to pick up the shaft *inside* the housing. Electro-Wheel is *unmatched for compactness because no part extends beyond the scroll side.*

Electro-Wheel is versatile. Scroll sides are pre-punched so that housing supports may be applied to obtain four angles of discharge. Provision is made for attaching BX for electrical connectors and for variable-speed, electrical control.

Your Lau representative will be pleased to explain your advantages with Electro-Wheel. *Range of sizes available.*

See Us February 25 to March 1 at Booth 836, International Air Conditioning Exposition, Chicago, sponsored by ASH&AE.

THE LAU BLOWER COMPANY 2007 Home Avenue, Dayton 7, Ohio



Azusa, California. In Canada: The Lau Blower Company of Canada, Ltd., Kitchener, Ontario

JOIN OUR MUTUAL ADMIRATION SOCIETY

We admire residential air conditioning jobbers and dealers — always have. (See bottom of next page.) And jobbers and dealers always have admired FRASER-JOHNSTON furnaces and air conditioning units. Why? Because there's more PROFIT in selling the best engineered air conditioning gas furnace on the market. AND — as you can see — FRASER-JOHNSTON has quite a line to offer!

Let's get better acquainted.



Fraser-Johnston

OVER A QUARTER OF A CENTURY OF LEADERSHIP

THE BEST ALL-YEAR AIR CONDITIONING FURNACE ON THE MARKET

Fraser-Johnston

Fraser & Johnston, one of the largest gas furnace manufacturers in the West, offers you the most advanced line of air conditioning gas furnaces on the market — die pressed — precision built — completely welded. All Fraser-Johnston gas furnaces are AGA approved.

The Fraser & Johnston line includes basement type, closet type, horizontal and gravity furnaces, as well as floor furnaces. Scientifically designed evaporators and condensing units are easily combined for 100% air conditioning. Only highest quality controls are included in the line.



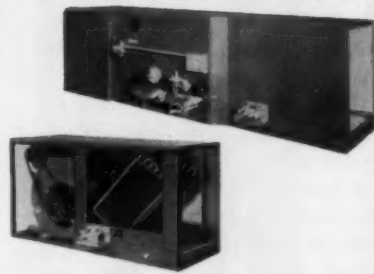
Model LJ (belt drive) and evaporator for basement installation. Nine sizes from 70,000 to 200,000 BTU/Hr. Input. Model LJD (direct drive) sizes 70, 75, 80,000 BTU/Hr. Input.



Model CJ (belt drive) and evaporator for limited space installation. Ten sizes from 70,000 to 200,000 BTU/Hr. Input. Model CJD (direct drive) sizes 65,000 to 120,000 BTU/Hr. Input.



Model RJ (belt drive) furnace and evaporator for counter-flow or perimeter systems. Ten sizes from 70,000 to 200,000 BTU/Hr. Input. Model RJD (direct drive) sizes 70,000 to 120,000 BTU/Hr. Input.



Upper, Model HN (belt drive) furnace and evaporator for horizontal application. Seven horizontal sizes available from 65,000 to 140,000 BTU/Hr. Input. Model HD (direct drive) sizes 70,000 to 100,000 BTU/Hr. Input.

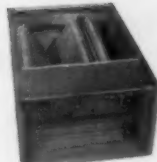
Lower, Model HB Air-handling unit to be installed independently of the heating system. 2, 3, 4 and 5 ton capacity.

AIR CONDITIONING EVAPORATORS

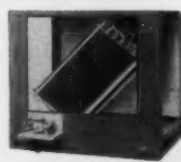
These are the finest cooling and dehumidifying coils in the industry designed especially for home air conditioning systems. Advanced design eliminates humidity build-up on the off cycle. All moisture removed from the air is immediately drained from airstream. Engineered for simple installation at lowest labor cost.



C Series. Companion to furnace Models CJ and LJ — sizes 90 to 200.



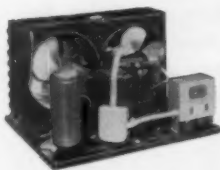
R Series. Companion to furnace Model RJ — sizes 90 to 200.



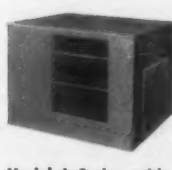
H Series. Companion to furnace Model HN — sizes 80 to 150.

CONDENSING UNITS

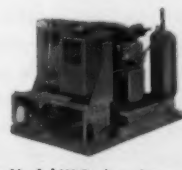
Fraser & Johnston offers both air-cooled and water-cooled Condensing Units. Air-cooled units are available with propeller type fan and with centrifugal type fan. These modern Condensing Units will operate under extreme temperature conditions, when properly applied and installed.



The Model J Series in 2 and 3 h.p. uses the popular propeller type fan for cooling the condenser.



The Model A Series, with metal, weatherproof enclosure, as shown, in 2, 3 and 5 h.p., uses the extremely quiet centrifugal fan.



The Model W Series, shown unenclosed, uses water for cooling the condenser and is not affected by extreme air temperature conditions.

Fraser & Johnston Company, manufacturers of Biltwel, Torid-air and Fraser-Johnston furnaces for more than a quarter of a century, sells only through the legitimate heating and air conditioning distributors. Some territories open. For complete specifications, engineering data, and prices, write to:



FRASER & JOHNSTON CO. 1900 - 17TH STREET, SAN FRANCISCO, CALIFORNIA

Steel Industry Foresees Its Biggest Year Coming Up

THE STEEL INDUSTRY probably will produce a record amount of steel in 1957. That was the prediction of Max D. Howell, executive vice president, American Iron and Steel Institute.

Mr. Howell pointed out that the industry is starting the year with unusually high demand, with record high capacity, and with a three-year labor union contract calling for no strikes or work stoppages.

Steel output during 1956 was about 115 million tons, the second highest annual total despite a loss of production during a 34-day strike.

U.S. steel making capacity at year-end was 133,459,150 net tons annually, an increase of five million tons over the previous year. Capacity has increased every year for the past 10 years and is 45 percent higher than at the end of World War II.

The industry has announced plans that will add more than 15 million ingot tons of capacity by early 1959 or before.

The stainless steel branch of the industry shipped approximately 680,000 net tons of finished mill products

during the past year. This was slightly less than during the previous record year, but stainless production was also affected by the steelworkers' strike.

The 200 series of stainless steels saw an 850 percent production increase over the previous year. This series gained in popularity because it uses about one-half the nickel content of the more familiar 300 series.

Study Made of Pitfall Clauses

A STUDY of contracts, proposals and pitfall clauses has been made by the Sheet Metal and Air Conditioning Contractors' National Association. The study seeks to help sub-contractors protect themselves against contract clauses which work against their best interests.

At the suggestion of SMACCNA, the Council of Mechanical Specialty Contracting Industries has agreed to present the question of these clauses to the Joint AIA-AGC Contracts Committee to enlist the support of architects and general contractors in solving the problems involved.

The clauses being considered include:

1) Hold Harmless Clauses— require sub-contractor to take on liabilities beyond those ordinarily assumed, including in some cases liability for actions of third parties over which the sub-contractor has no control.

2) Penalty Clauses— penalize sub-contractor for failure to perform without providing exceptions to cover strikes or other difficulties beyond the sub-contractor's control.

3) Commencement Date and Escalator Clauses— provide protection against increased costs when commencement of work is delayed or when work is interrupted by factors beyond the sub-contractor's control.

Compressor Shipments Go Up 36 Percent in 1956

MANUFACTURERS' shipments of compressor bodies as reported to the Air-Conditioning and Refrigeration Institute were up almost 36 percent during the first three-quarters of 1956 over the same period the previous year.

Shipments through September totaled 3,860,273 units, not including compressors for household refrigerators. The 1955 figure for the same period was 2,844,741 units.

The figures were based on reports from 17 manufacturers, which represent an estimated 90 percent of total U.S. production of compressor bodies of the types covered.

The largest shipments reported for any single size-category were those of one-horsepower units, which accounted for 692,016 of the total. The ratio of 1/4 horsepower units to the total showed a notable drop during the year. At the same time the ratio in the 1 1/2 horsepower size experienced a significant increase.

Major Market Seen for Electronic Air Cleaning

A POTENTIAL annual market of \$90 million for electronic air cleaning is predicted by John E. Haines, vice president, Minneapolis-Honeywell Regulator Co.

In the next five years, Haines said, sales of electronic air cleaners may expand to \$70 million annually in commercial buildings and \$20 million in homes.

Mr. Haines said that these estimates are based on expected reductions in the price of units through large-scale manufacturing and distribution.

"The need for clean air has not been sufficiently recognized," Mr. Haines said. "It has not been dramatized to us as the problem of water pollution has. Most heating and air conditioning installations do not actually clean the air."

Apprenticeship Contest Deadline Is April 15

DEADLINE for entries in the 1957 Sheet Metal Apprenticeship Contest is April 15. Entries of local contest winners are submitted to the Sheet Metal Workers National Joint Apprenticeship Committee in Chicago for the selection of national winners.

The contest is open to all first and second year apprentices who have not completed 4,000 hours of training. Prizes of \$200, \$125 and \$75 will be awarded.

For information, write to Joseph J. Kaberlein, secretary, National Joint Apprenticeship Committee, 6543 Nokomis Ave., Lincolnwood Towers 30, Ill.

***Help yourself
to a share of the sweetest profits ever!***

**with
Mueller Climatrol**

**... CAPPING 100 YEARS WITH THE BOLDEST
SELLING PROGRAM IN THE HEATING AND
COOLING INDUSTRY**

Mueller Climatrol turns the tables. It's our 100th birthday but you get the presents!

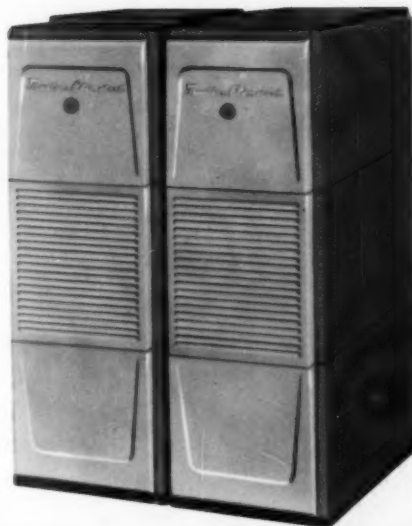
From a centennial promotional push—you get new, hard-driving national advertising plus everything you need in sales, business and merchandising aids.

From years of successful dealer dealing—you get factory cooperation and a sound, fair sales policy that's the basis of our progress.

From pace-setting engineering—you get the best to sell. America's most complete line of heating and cooling equipment.

From a century-long quality reputation—you get customer confidence and brand-name recognition.

**TAKE PART IN THE PARTY—CUT YOURSELF IN
ON THE PROFIT OPPORTUNITY OF THE CENTURY**



*there's more
on the menu
(in '57)*

***Never in a hundred years ...
better products behind you...***

NEW!

TRADITIONAL UNITS

Embodying the best in modern comfort concepts, Mueller Climatrol's new golden comfort twins offer the ultimate in year-round air conditioning. Can also be installed separately—starting with the heating companion . . . adding the cooling twin later. Rust-proof "Paint-bond" finish standard with all Mueller Climatrol units for '57.

NEW!

BUILDER UNITS

Type 127-227 winter air conditioners—compact, multi-application units that fit every requirement for low-cost housing installations. Can be used as highboys or lowboys—in basements or utility rooms. Type 118-218 counterflow—100,000, 125,000 and 150,000 Btu units for perimeter heating—feature full width 13-inch blower, built-in filter rack, two clean-out openings.

NEW!

COOLING EQUIPMENT

Type 915—a 3-hp, self-contained, air-cooled unit with pre-fabricated ductwork available for attic, basement or outside installation. Type 917 blower coil unit with cooling coil and fan can also be installed in duct or plenum. Use standard water or waterless condensing units. 920 self-contained year-round room air conditioner offers new compactness. Heats from central system, has own waterless cooling cycle.

...and other new units to come!



TRADITIONAL COMPANION UNITS



TYPE 118-218 ENCLOSED COUNTERFLOW

bigger profits ahead

with **Mueller Climatrol[®]**

***Centennial sales program turns up gold in '57
with America's most complete heating and cooling line***

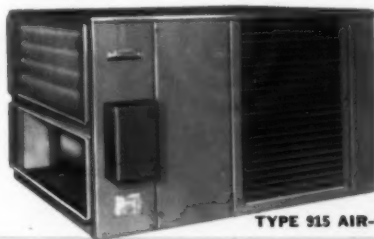
MORE TO SELL—Be our guest, as Mueller Climatrol blazes new sales trails with important additions to America's number one heating-cooling line. More than ever, you're in profit position on every job.

MORE TOOLS TO SELL WITH—A sparkling new package of sales promotion and business aids—all centered around Cathy Climatrol, the sweetest saleslady in the business. Also paving your profit path: an unmatched program of factory support.

Why not hear the story first-hand from the one who knows it best? Call your man from Mueller Climatrol.



127-227 WINTER AIR CONDITIONER



TYPE 915 AIR-COOLED AIR CONDITIONER



TYPE 920 YEAR-ROUND ROOM AIR CONDITIONER



TYPE 917 BLOWER-COIL UNIT

...backed by a can't-miss sales formula





all the ingredients of a
successful selling recipe



complete line

The most complete in the business—gas and oil highboys, lowboys, gravity and counterflow units... gas boilers and unit heaters... water-cooled and waterless, add-on and self-contained cooling.



famous name

A century-old quality reputation, nationally known and universally respected for its integrity. And with the largest promotion in our history scheduled—that name will be seen more than ever in '57.



quality manufacture

The most modern production facilities, completely devoted to producing heating and cooling equipment. Highest quality control standards and testing procedures assure the best.



experience

Includes the pioneering of many key developments: first forced-air heating unit, first design convertible from oil to gas, first highboy winter air conditioner and the self-contained year-round room air conditioner.



fair dealing

Liberal cooperative policy, plus sound selling programs to help build successful dealer operation. Parts and engineering assistance available *when you need them*.



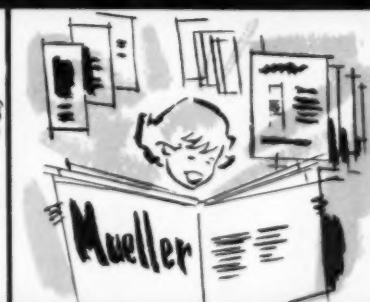
dealer training

Cooling schools, merchandising clinics, plus design and engineering data bulletins keep Mueller Climatrol customers in tune with latest product improvements and service information.



advanced engineering

Our staff includes some of the nation's outstanding heating and cooling engineers whose designs lead the industry.



promotion aids

Second-to-none sales, business and merchandising aids, such as newspaper, radio and TV material, decals, signs, displays, direct mail, and many others—plus powerful support from national advertising.



strength

Mueller Climatrol is an independently managed division of world-famous Worthington Corporation—your assurance of stability. Time-proven products used around the world.

**Never in a hundred years...
a surer sign of success**



Mueller Climatrol

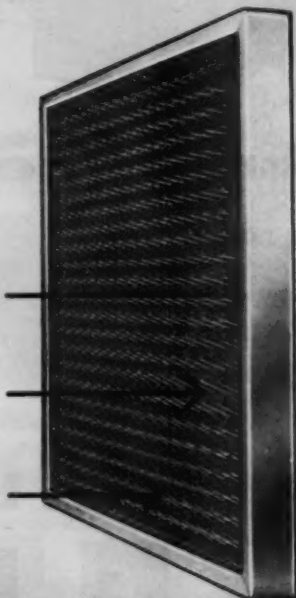
Milwaukee 15, Wisconsin

... Climate control for healthful living

NEW *Free Flo* AIR CLEANING ACTION

Cleans air without choking it off . . . Saves fuel!

- Permits faster release of heated air from furnace heat chamber.
- Enables furnace blower to maintain full delivery of heated air to living zone.
- Full blower delivery means (1) complete use of BTU output. (2) Full benefit from fuel burned. (3) **REAL FUEL SAVINGS.** (4) More comfort delivery from every dollar of fuel burned.
- Eliminates wasteful heat loss out chimney due to inability of restricted air stream to maintain proper air delivery to living zone.
- At all times . . . **SUPER CLEANS THE AIR WITH A PRECISION TURBULENCE ACTION.**



Easy to clean. Light weight
— easy to handle. Hose out
with ordinary tap water.



Evans

Lifelong Air Filters

Heavy gauge lifetime aluminum construction

Originally designed for American industrial market. Now being made available for residential use.

Big capacity — low resistance

Holds two to three times more dirt than ordinary filters without harmful resistance to air flow. Lets furnace push full flow of clean warm air into living area.

SEE OUR EXHIBIT AT THE
**INTERNATIONAL HEATING AND AIR CONDI-
TIONING EXPOSITION, Chicago, Ill.**

Booth 333-335

Feb. 25-Mar. 1

MAKE BIGGER FILTER PROFITS — KEEP YOUR CUSTOMERS HAPPY — ELIMINATE COSTLY NUISANCE CALL-BACKS — GET FULL DETAILS TODAY ON EVANS LIFELONG ALL-ALUMINUM FILTERS WITH FREE-FLO AIR CLEANING ACTION.

MAIL COUPON FOR FREE LITERATURE

THE GEORGE EVANS CORP., Moline, Illinois

Gentlemen: I WANT TO MAKE BIGGER FILTER PROFITS. Rush full details on EVANS BIG CAPACITY, FREE-FLO AIR FILTERS.

NAME _____

COMPANY _____

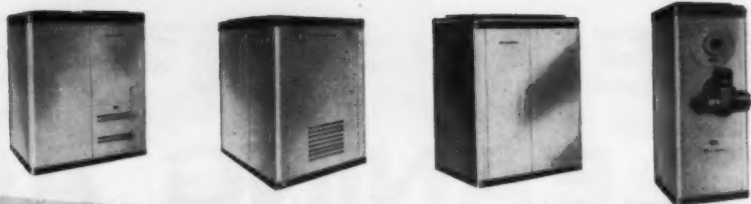
ADDRESS _____

CITY _____

STATE _____

AIR FILTERS • INDUSTRIAL FILTERS • GREASE FILTERS

Gasaver and
Oilsaver Furnaces



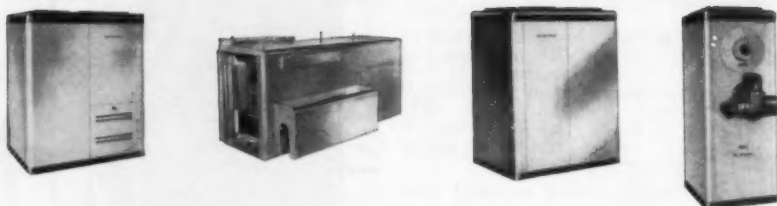
for the industry's most

DeLuxe Gas
& Oil Furnaces



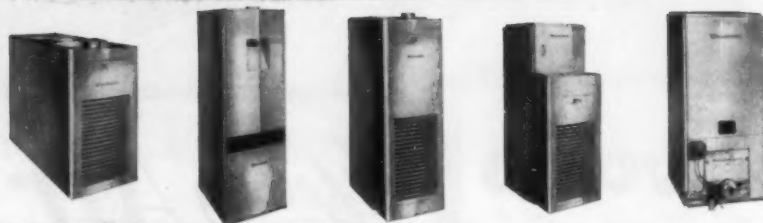
complete line of heating and

Super Gas,
Oil & Coal Furnaces



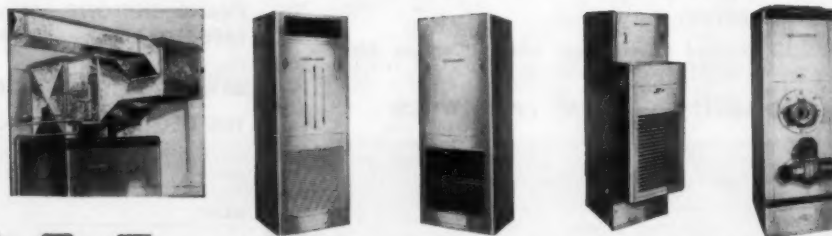
cooling equipment backed by

Special Gas
& Oil Furnaces



strong consumer promotion . . .

Wethermatic
Airefrigeration
Waterless Cooling Units



choose

WILLIAMSON

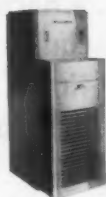
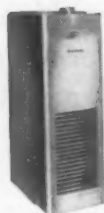
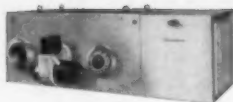


Blue-Gray Metalescent Finish

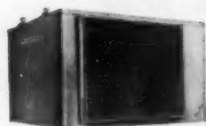
- *New Designs*
- *New Models*
- *New Colors*



Two-tone Hammer Finish Green



Gleaming White Enamel



As Advertised in Leading Magazines

THE WILLIAMSON COMPANY

3310 B-2 Madison Rd.

Cincinnati 9, Ohio

Gentlemen:

Please send me information on the following:

- ☐ Heating Equipment ☐ Cooling Equipment
☐ Duct, Pipe and Fittings

Name.....Title.....

Firm.....

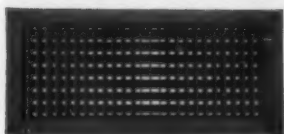
Address.....

City.....Zone.....State.....

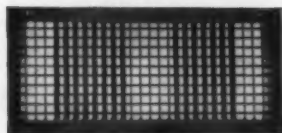
Silvair



... a hard, silver-blue, baked, deluxe finish over prime coat—a quality finish for a quality product — and job-painting is eliminated.



STYLE DVL



STYLE DDV

And—do you know that —

STEWART outlets provide the industry's maximum free area —

All STEWART register faces are available with Opposed - Action Valves or 1" Parallel - Acting Multivalves at a lower price.

Most STEWART products are available in Stainless Steel—Solid Bronze—All Aluminum.

An inquiry on your letterhead will receive the prompt, courteous attention of a representative.

Stewart

MANUFACTURING COMPANY, INC.

CEDAR GROVE

ESSEX COUNTY

NEW JERSEY

3405

designed . . .

to be **Record-Breakers!**

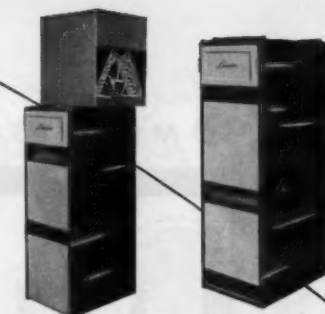
**ALL
NEW**

Luxaire[®]

**Gas fired units
Oil fired units**

- 1957 Designs that are Entirely New!
- Completely Assembled and Wired!
- Concealed Burner and Controls!
- A New High in Attractive Appearance!
- Easier to Sell than to Compete Against!

See Our Exhibit: International Heating and Air Conditioning Exposition, Space 832, International Amphitheatre, Chicago, February 25 — March 1st.



Upflow Model Shown with Cooling Coil is Low in Height, Narrow in Width, Short in Depth

Counterflow Model is Equally Compact, Attractive and Adaptable

Upflow Model with Optional Return Air Cabinet at rear



- First you'll be surprised! Then you'll be pleased!

Is it possible to pack so many desirable features into such a sturdy and compact furnace, with a new lower price?

When you see the all new Luxaire Gas and Luxaire Oil Winter Air Conditioning Units, you will recognize your advantage.

These entirely new furnaces provide a new standard of excellence at prices lower than you would expect for shoddily built units.

They are your opportunity to meet the 1957 brand of competition with improved profit. They are deluxe furnaces that are easier to install and enjoy Luxaire's reputation of trouble-free performance.

You can take advantage of this opportunity now, by calling your Luxaire jobber now!

Gas Fired: Upflow and Counterflow . . . 75,000, 100,000 and 125,000 Btu input.

Oil Fired: 78,400 and 100,000 Btu at bonnet.



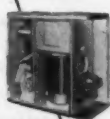
Year 'Round Air Conditioners, 2, 3 and 5 Ton, Air or Water Cooled, Gas or Oil Fired



Water Cooled Add-On Summer Air Conditioners, 2 and 5 Ton



Air Cooled Add-On Summer Air Conditioners, 2, 3 and 5 Ton with Companion "V" or Flat Cooling Coils



Gas or Oil Basement Type Winter Air Conditioners



Gas or Oil Fired Utility or Counterflow Winter Air Conditioners

Gas Fired and Oil Fired Horizontal Furnaces



Gas Fired Gravity Furnace



Gas Fired Unit Heaters

THE C. A. OLSEN MANUFACTURING COMPANY • ELYRIA, OHIO

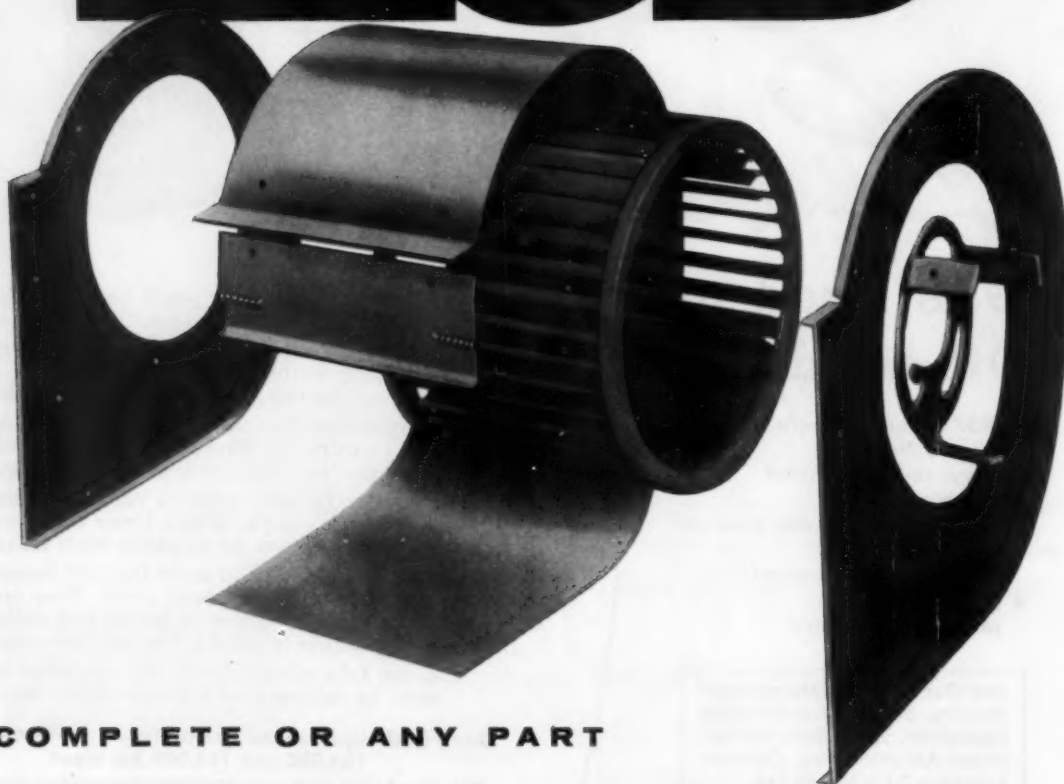
Luxaire

HEATING & AIR CONDITIONING UNITS



MORRISON CUSTOM DESIGN

MCD



COMPLETE OR ANY PART

Because of the various Morrison Blower Designs and the many component parts that go into the making of complete assemblies, M.C.D.* offers you blowers that are practically designed individually for your furnace and air conditioning units.

Meeting every requirement of space and function, overcoming all the limitations of stock blowers, M.C.D.* makes it possible for you to obtain quality produced blowers built and designed specifically for your products.

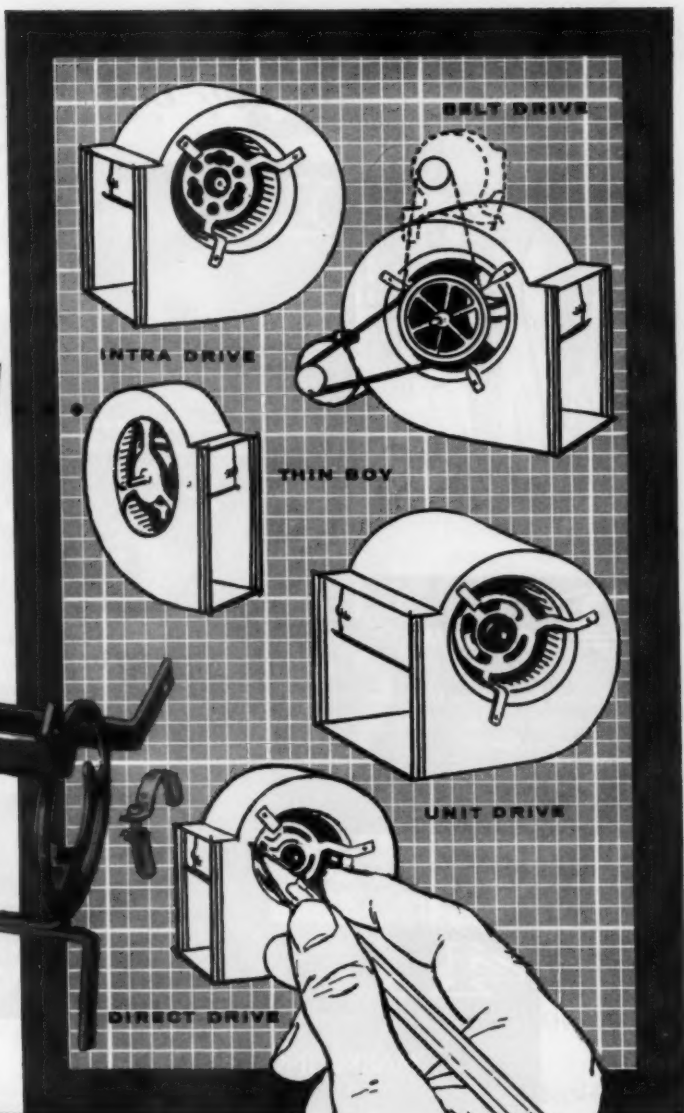
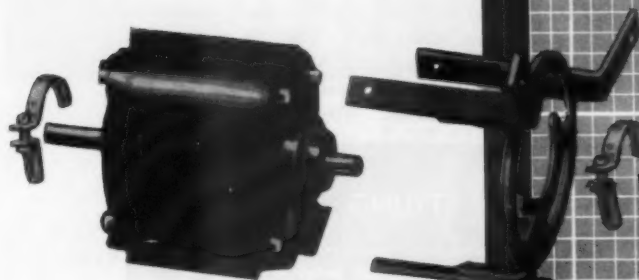
In addition to this, substantial savings are assured by the combination of standard parts produced in volume.

Morrison engineers will be happy to work with you — as they have with most of the leading Heating and Air Conditioning Manufacturers — for perfect distribution of air in your equipment.

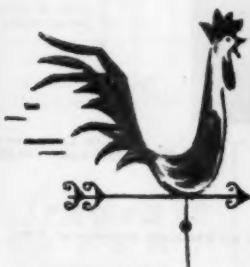
Write us today — tell us of your problems — and see if we can show you a simple "out".

MORRISON PRODUCTS

**individualized
and stylized
for your
particular need**



Photographs at left show Morrison Wheel and component parts of Direct Connected Blower.



Be sure to visit us at the
International Heating and Air
Conditioning Exposition
Chicago Feb 25 to March 1st
Booth 936

INCORPORATED

16816 Waterloo Road
Cleveland 10, Ohio



Your customers want the best!

1. PRODUCT

Quality Heil pre-wired and pre-assembled units provide top combustion efficiency... maximum heat transfer... sound, durable construction... immediate response to convenient controls... and economical, dependable operation.

sell them

HEIL

...the **four**-most heating and cooling line!

2. NAME

The Heil Co. name is known and respected for quality, service and fair dealing by thousands—including your customers!

Today, people have both the inclination and the income to "buy better" — they insist on *value*, as well as a "good deal". For this reason, the men who sell Heil *quality* heating and cooling are particularly well-equipped to sell today's market. Why not join them?

Write now for important information on how you can sell more than price, with HEIL!

3. STYLING

Because Heil units look better with their distinctive and durable two-tone baked enamel finishes, they sell better to quality-conscious buyers. Their beauty is not skin deep, either!... upon looking inside, you'll find top engineering design in the "working" parts, too!

4.

MARKETING

The Heil Co.'s established policy of fair dealing and generous co-operation has won friends far and wide. Compare our dating plan and floor plan arrangements... our co-operative advertising helps.



14 Gas-Fired Winter Air Conditioners
(BTU range: 60,000 to 200,000)



13 Oil-Fired Winter Air Conditioners
(BTU range: 84,000 to 224,000)



6 Gas-Fired Boiler-Burner Units
(BTU range: 70,000 to 200,000)



6 Oil-Fired Boiler-Burner Units
(BTU range: 93,000 to 252,000)



12 Summer Air Conditioners
(Cooling Capacities: 24,000 to 36,000)
(Water and Air Cooled Units Available)



4 Oil Conversion Burners
(GPH Capacities: 0.50 to 6.00)



3 Gas Conversion Burners
(BTU Output range: 70,000 to 400,000)

The Heil Co. is a member of  GAMA and an associate member of 

See us at the ASHAE Show in Chicago, Feb. 25 thru March '11

THE HEIL CO.

3081 W. Montana St.
Milwaukee, Wisconsin • Hillside, New Jersey

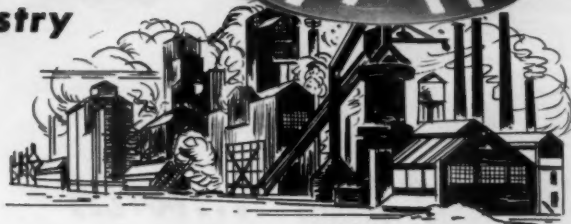
SALES OFFICES: New York, N.Y.; Union, N.J.; Atlanta, Ga.; Cleveland, Ohio; Chicago, Ill.; Milwaukee, Wis.; Kansas City, Mo.; Denver, Colo.; Dallas, Texas; Los Angeles, Calif.; Seattle, Wash.



Quickdraft...

the world's most
efficient power
exhauster

...for industry



...for institutions



...for residences



Capacities of 56 standard
and heavy duty models (6
to 30 inches diameter)...
8,400 CFM to 1,005,960
CFM ... greater capaci-
ties on special order.



See our display
Booth No. 717
International Heating and
Air Conditioning Exposition
Chicago ... February 25
to March 1, 1957

Quickdraft COMPANY

Dueser-Hampden Building
P. O. Box 87-D, Canton 1, Ohio

★ NO MOTORS, FANS OR BEARINGS IN EXHAUST LINE

★ NEEDS NO STACKS

★ ACID RESISTING VITREOUS ENAMEL FINISH

FOR INDUSTRY, Quickdraft excels in venting paint booths ... abrasives ... corrosive gases ... noxious fumes ... high temperatures and moisture. Its blower operates in clean or outside air. It eliminates down-time for cleaning and replacing fan blades. It improves industrial venting and reduces maintenance costs!

FOR INSTITUTIONAL AND COMMERCIAL BUILDINGS, Quickdraft efficiently vents heating plants, water heaters and incinerators at roof level. It saves the cost of building unsightly tall stacks.

FOR RESIDENCES, Quickdraft makes low, cold and erratic chimneys function. On and off with the fire, Quickdraft maintains constant draft required for efficient and economical combustion of all fuels. It eliminates pulsating or chattering, puffing, smoking and sooting.

SEND FOR QUICKDRAFT ENGINEERING DATA ON YOUR VENT-
ING OR HEATING APPLICATIONS ... TODAY.

Quickdraft Company
Dueser-Hampden Bldg., P.O. Box 87-D, Canton 1, Ohio
Please send Quickdraft engineering data for

- ☐ Industrial Exhausting
☐ Commercial Heating Plant
☐ Residential Heating Plant

Firm _____ Title _____

Individual _____

Street _____

City _____ Zone _____ State _____

N-399-QD

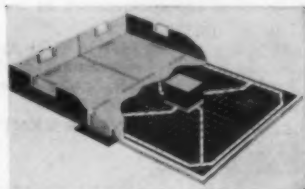
So strong you can step
on it, so lightweight you
can carry the longest length!

Save time by the hour
...concrete by the
cubic foot

Transite Air Duct being installed in
Ridgewood Homes, Inc., Worth, Ill.
Clifford J. Wood, Builder: Brainerd
Heating and Sheet Metal Co., Heat-
ing Contractor.



Taped joints are this easy to make,
right at the job site.



Transite is ideal for loop or radial
systems.

...with

easy-to-install Transite air duct!

Transite® offers you unmatched dollar
savings for perimeter heating and cooling
systems! Here's why:

First, Transite is light in weight. This
means it is easy to truck, stack, and carry
on the job. Easy to assemble, too . . .
permanent, efficient joints are quickly
made with easily applied Ductite® Tape.

NO ENCASEMENT NEEDED

More important, Transite saves substan-
tially in both time and concrete. Transite
needs no concrete encasement . . . can be
laid directly on the prepared bottom.
Transite won't "float" . . . needs no special
supports or anchoring. Just position ducts
and pour concrete . . . Transite won't
crush, dent, or deform.

AVAILABLE IN LONG LENGTHS

Installation is still faster and easier because
of Transite's long, 10-foot lengths . . .
fewer joints to be made to complete the
installation. And fittings can be made right
on the job . . . simply cut the pipe to shapes
desired and tape sections together.

MANY HOME OWNER ADVANTAGES

Transite offers home owners long, trouble-
free service. Made of asbestos and cement,
it is fully corrosion-resistant inside and out,
it won't flake or flap down to impede air
flow . . . will never rot or give off odor. For
free booklet, TR144A, write to Johns-
Manville, Box 14, N. Y. 16, N. Y. In Canada,
565 Lakeshore Road East, Port Credit, Ont.

Johns-Manville TRANSITE AIR DUCT



NOW! Take home a...

BIGGER

with

MONCRIEF'S

Totally New

**GAS Fired and
OIL Fired
Furnaces**

!!!

ON DISPLAY

Space 933, 13th International Heating and Air-conditioning Exposition, International Amphitheatre, Chicago, February 25 — March 1.

● NOW, by installing a more modern furnace—an entirely new, superior furnace—you can gain back the profit dollars which competition from cheaply constructed units may have been costing you!

Moncrief's totally new Gas Fired and totally new Oil Fired Winter Air Conditioners have every advancement that dynamic engineering and over 60 years of manufacturing experience can produce! They are:

1. **COMPLETELY ASSEMBLED AND WIRED**—Oil as well as Gas—requiring only connection to fuel supply, electric supply and ducts!
2. **MORE COMPACT**—Gas Upflow models are but 51" high—Gas Counterflow models 58" high—all models 26" deep and from 18" to 22" wide!
3. **APPROVED FOR CLOSE CLEARANCE**—at both sides and rear—at no extra cost!
4. **BETTER LOOKING**—with enclosed burners, controls and draft diverter—with harmonizing two-tone grey finish.

Remember, when you check the price, that this is a quality furnace—a Moncrief furnace. The new low price is made possible by the largest expenditure for new tooling in our history—to make you more competitive!

You will profit from this investment by asking your Moncrief Wholesaler for prices and catalogs, today!

GAS MODELS: 75,000, 100,000 and 125,000 Btu Input—Upflow and Counterflow

OIL MODELS: 78,400 and 100,000 Btu at Bonnet



Upflow Unit with Cooling Coil. Provision is made to add extra Blower capacity at any time!



Upflow Unit with optional Return Air Cabinet installed at the rear.

Upflow Unit with optional Side Return Air Intake and Filter Frame.



Counterflow Unit has the same compact good looks as the Upflow!



THE HENRY FURNACE COMPANY • Medina, Ohio

HEATING AND AIR CONDITIONING UNITS

MONCRIEF

FURNACE PIPE AND FITTINGS



Gas or Oil Fired Basement Type Winter Air Conditioners



Gas or Oil Fired Utility or Counterflow Winter Air Conditioners



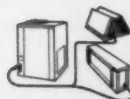
Gas or Oil Fired Gravity Furnaces



Gas Fired and Oil Fired Horizontal Furnaces



Gas Fired Unit Heaters



2, 3 and 5 Ton Air Cooled Condensing Units with matching Plenum or Duct type Cooling Coil



2, 3 and 5 Ton Air or Water Cooled Gas or Oil Fired Year 'Round Air Conditioners



3 and 5 Ton Water Cooled Add-On Summer Air Conditioners

PLUMBING, HEATING CONTRACTORS!

When you're going after new construction business, you need more than the right bait — You need to know where to drop your line . . .



We help you pick the right pond

just looking anywhere is a costly way to find business—the best, economical way is to be at the right place at the right time. If you want to know what jobs are coming up and when, then mail this coupon today.

TO: DODGE REPORTS, 119 WEST 40th STREET, DEPT. 160, NEW YORK 18, N. Y.

Yes! I'd like to pin-point my prospects by knowing in advance who's going to build, what, when, where.

I want to know whom to contact and when to submit bids.

I'd like to see some Dodge Reports and I'd like a copy of your booklet that tells how to use this accurate, daily, up-to-the-minute construction news service.

I understand that I can pick just the area and type of construction activity that interests me. Also, that I won't have to wade through mounds of data to find the information I need.

I'm interested in General Building ☐ House Construction ☐ Engineering (Heavy Construction) ☐

In the Following Area: _____

NAME _____

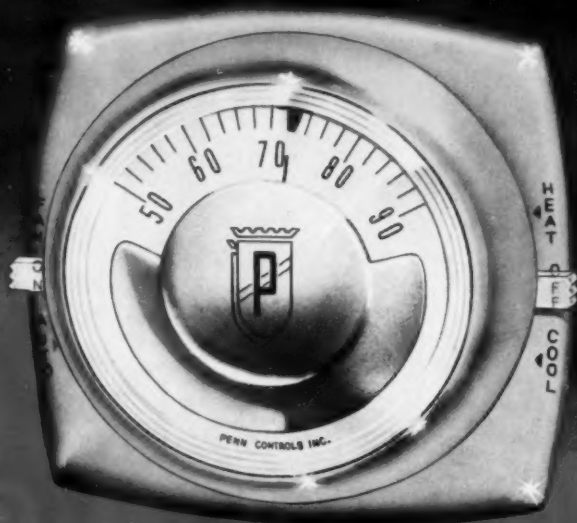
ADDRESS _____

CITY _____ ZONE _____ STATE _____



TODAY'S
EASIEST-TO-READ

room thermostat



Actual Size
Illustration

IT'S NEW! ... IT'S RIM-SET! ...

AND ONLY PENN HAS IT!



Installation is simpler. The adjustable heat anticipator and all wiring is on sub-base where large terminals are easily accessible. Then, the thermostat is simply plugged into the sub-base. Accurate operation is assured even if sub-base is not installed in a level position. Temperature is held within 1 degree.

- ... you get more selling features
- ... easier installation
- ... and reduced inventory

Now... the newest, most beautiful look in room thermostats without sacrificing snap-acting contact action... the action that is proven to be the very best for sturdiness and long-life dependability. This thermostat has the largest, most easily read dial you've ever seen. And, the scale remains stationary as you dial the rim to set the temperature you want.

Various sub-bases are available for heating alone... for cooling only... or for combination heating-cooling systems. And, the same thermostat can be used with any sub-base. Thus, inventory is reduced... just stock variables of the sub-base.

Once you see this new, different, better thermostat, you'll want to specify and install it on your heating and cooling jobs.

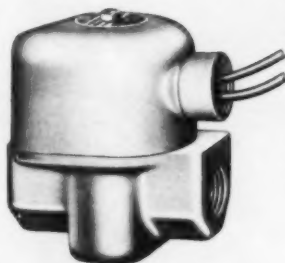
AND, THERE'S MORE . . .

remember...

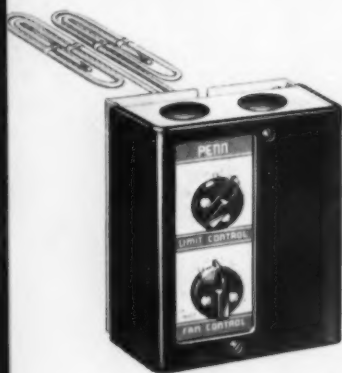
PENN CONTROLS ALWAYS DELIVER THE YEAR 'ROUND COMFORT YOU SELL!



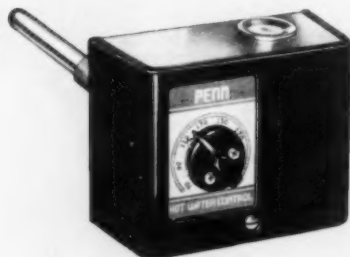
New oil burner stack switch with today's most advanced features. Type 680 for continuous and Type 682 for intermittent ignition.



Type 926 gas valve with straight-through flow and vertical self-cleaning seat. Pressure regulators and pilots available.



Type 520 liquid expansion combination fan and limit control with calibrated dials for warm air furnaces.



Type 442 safety limit or operating immersion control with "trigger-quick" response for hot water jobs.



Series 753 air conditioning control center for self-contained package air conditioning for either residential or commercial jobs.

Each time you sell and install a heating, cooling or combination heating and cooling system, you sell one main benefit... control of indoor temperature for true living comfort! That's why automatic controls are so important.

So, a good thing to remember is that you always fulfill your promise to customers with Penn automatic controls. On any type of heating and cooling system, once Penn controls are installed properly, their dependability and accuracy deliver the *better comfort you sell!* It's the kind of carefree performance that creates better-satisfied customers, more sales and more profit for you.

For convincing proof, specify and install Penn heating and cooling controls on your next job. A few models are shown on this page... there are many more from which you can select a type to exactly fit your needs. Ask your equipment manufacturer, or wholesaler.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N. Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

The Shoe Fits...YOU AND

PEERLESS

**AIR CONDITIONING
AND NOW—THE "CLIMA-PUMP"**

Big, small, medium . . . no matter what the scope of your operation, *Peerless* is designed to meet your customer demand in every detail.



EXAMPLE:

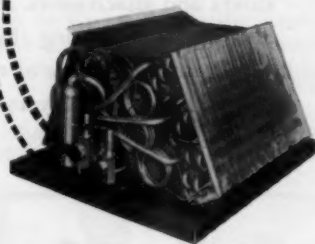
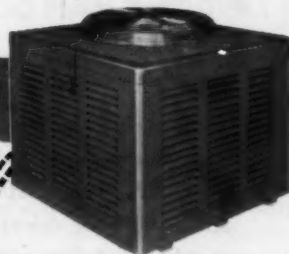
the Peerless 1957 "Clima-Twin-Aire" . . . it goes anywhere, with all moving parts outside the house . . . it's waterless, noiseless and economical!



the Peerless "Clima-Pump," a great contribution to a whole new 20th century era of heating and cooling. One all-electric unit does both, cooling in summer and heating in winter without fuel, flues or fuel residues.

Peerless puts you on the front line!

EXAMPLE:



**We'll see you at the
13th International Heating
and Air Conditioning Exposition
in Chicago . . .
FEBRUARY 25TH-MARCH 1ST
BOOTH NO. 555**



PEERLESS

CORPORATION
FURNACES
AIR CONDITIONERS
FURNACE FITTINGS

INDIANAPOLIS 7, INDIANA

CRESCENT SOCKET WRENCHES, ATTACHMENTS AND SETS



Complete Set No. CSB18-
1/2" Square Drive. Twelve 12 point
sockets 7/16", to 1-1/4", three handles and two
extensions in a heavy gauge, piano-hinged steel case.

"Midget" Set No. CMB16. 1/4" Square Drive. Eight
6 point and three 8 point sockets 3/16" to 7/16",
two handles and cross bar and two extensions in a
sturdy metal case with piano-hinged cover.

Here's world-famous Crescent Quality in a moderately priced line of Socket Wrenches. All popular sizes. Thirteen set combinations: 1/4", 3/8", 1/2" and 3/4" square drives; 6, 8 and 12 point sockets; standard and deep types, and a variety of handles, drives and attachments. Precision machined from alloy steel, permitting thinner than average side walls with no sacrifice of strength. Chrome-plated ... loaded with utility features.

CRESCENT and CRESTOLOY TOOLS are sold by hardware dealers and industrial distributors everywhere. Look for the bright yellow Crescent Display panels and select from one of the world's greatest assortments of quality hand tools.

CRESCENT TOOLS

Give Wings to Work

*Sign of the Artisan
Symbol of Excellence*

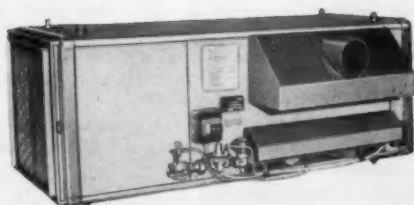
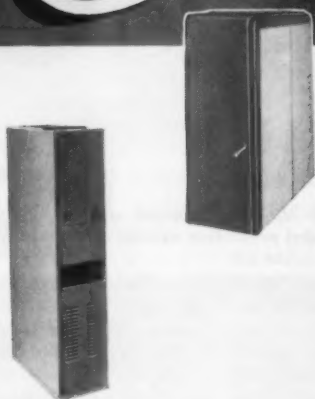


Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by
CRESCENT TOOL COMPANY, JAMESTOWN, NEW YORK



CRANE

Sunnyland



Meet the newest and easiest selling name in the warm air heating industry

If people *know* the name of the furnace or air conditioner—and they *trust* that name—your selling job is that much easier. This is just one of the many reasons Crane Sunnyland equipment is so easy to sell.

Lots of other reasons, too: a complete line of warm air furnaces (both oil and gas)—hi-boy, counterflow, basement and horizontal types. Add-on and year 'round air conditioners. Competitive prices . . . backed by Crane's reputation for quality, dependability and service plus powerful national consumer advertising with local sales helps for you.

Call your Crane Branch or Crane Wholesaler now for more information on Crane Sunnyland warm air heating and air conditioning. Remember, you have more to gain when you sell Crane.

CRANE CO. 836 South Michigan Avenue, Chicago 5
VALVES • FITTINGS • PIPE • PLUMBING • KITCHENS • HEATING • AIR CONDITIONING

WARM AIR

HEATING AND AIR CONDITIONING

LOW HAULING COSTS COME RIGHT FROM THE "HEART" OF A '57 CHEVY



Many of the things that make a Chevrolet truck more economical to run are seldom seen by the owner. They're hidden features, deep in the truck's design.

Here are just a few of them, to prove a Chevy's engineered better and built better for bigger savings!

1. **Forged steel crankshaft**—It's extra sturdy, precision machined and balanced, the foundation for dependable, long-lasting power!
2. **Aldipped exhaust valves***—Special aluminum treatment on valve surface protects valves against pitting; engine wears less, costs you less to run!
3. **Hydraulic valve lifters**—for longer valve life in V8's, fewer engine repair jobs.
4. **Chevy V8 piston**—Thanks to short-stroke V8 engine design, this piston travels a shorter distance, wears less. Short-stroke efficiency aids fuel economy, too!

5. **Oil-bath air cleaner**—standard on all Chevrolet truck engines for added protection against dust and foreign matter that shorten engine life.

6. **High-capacity oil filters****—They remove dirt particles from Chevy engine oil to cut engine wear and maintenance.

7. **Easy-adjust distributor points**—You can adjust this new Chevy V8 distributor *with the engine running*; it's added insurance against costly down time.

8. **Multiple fuel filters**—For clean fuel, all Chevy engines have fuel filters in the carburetor and fuel tank; in addition, V8's provide an extra filter at the carburetor.

9. **Ball-Gear steering mechanism**—Inside this steering gear scores of polished steel balls virtually eliminate friction. Less friction means less wear, less maintenance!

10. **Rugged manual transmission**—Synchro-Mesh design eliminates the need for double-clutching, reduces costly wear. Gears are shot-peened for extra strength.

11. **12-volt battery**—provides sure starting, good ignition, long battery life in all Chevrolet trucks.

And there are many more! See your Chevrolet dealer for all the dollar-saving facts. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

*On Thriftmaster 6, Trademaster V8.

**Standard on V8's and Jobmaster, optional on Thriftmaster 6.

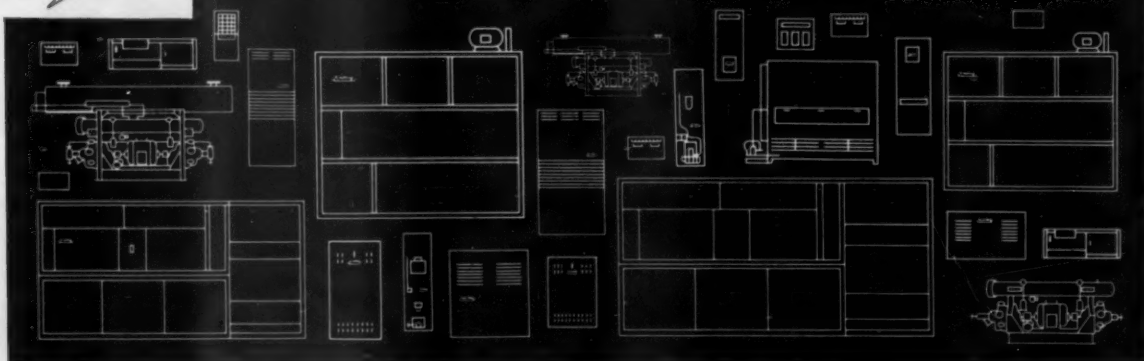
1957 CHEVROLET TASK-FORCE TRUCKS

PROVED ON THE ALCAN HIGHWAY . . . CHAMPS OF EVERY WEIGHT CLASS!

CHEVROLET



Sweep Forward with **CHRYSLER!**



AIRTEMP FURNACES... built with the future in mind ...for **FASTER SALES** now!

Two important advantages boost heating sales for Airtemp dealers.

First, the finest automatic furnaces you can buy...Chrysler-engineered to exacting standards, for maximum efficiency and dependability.

Second, the important "plus" of future cooling. Every Airtemp fur-

nace quickly and easily becomes year-round air conditioning with the simple addition of economical Airtemp self-contained or remote cooling.

It is Chrysler "designing for the future" like this that makes Airtemp furnaces *your best bet for faster sales!*

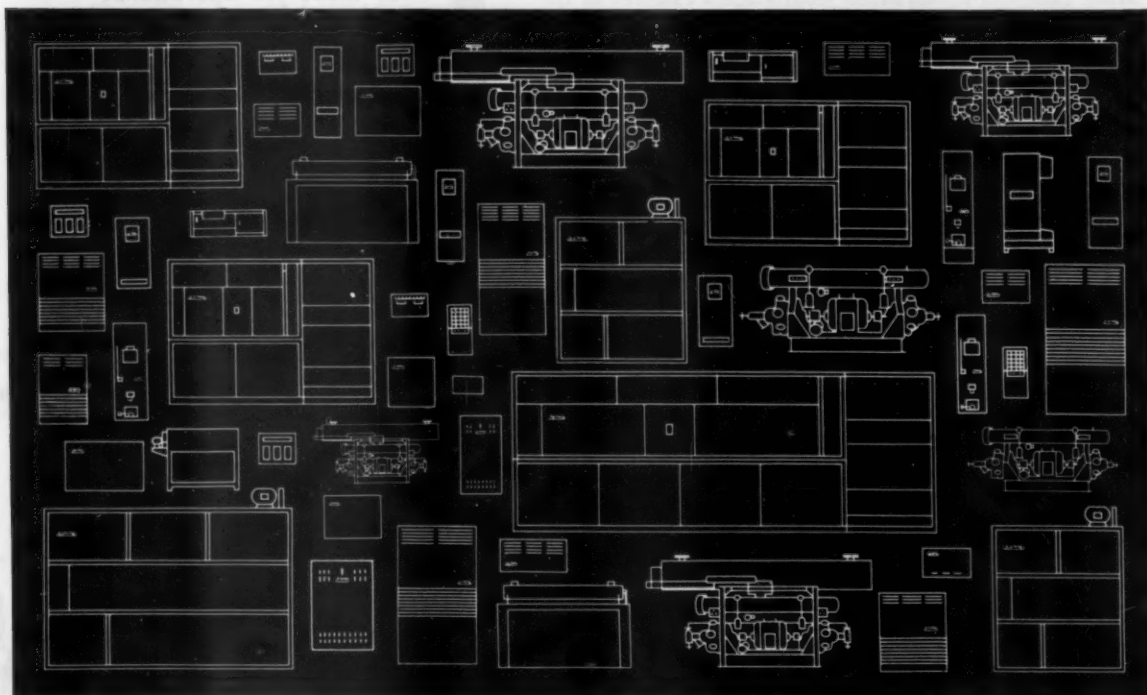
New Promotion Help... for You!

Full-schedule, full-page advertising in top national magazines...effective, new prospect-getting campaigns, special promotions—a whole array of tested merchandising aids! Why not join the big sweep forward—with Chrysler?

Write for details on Airtemp franchise opportunities *today!* Airtemp Division, Chrysler Corporation, AA-2-57, Dayton 1, Ohio.

Airtemp
DIVISION
CHRYSLER CORP.

offers the **greatest** selection of air conditioning equipment...**286** models
...**38** of which are **furnaces**



What speed!

Most for the money!

A machine for every job!

A cinch to operate!

Built to take it!

watch the newest sheet metal working machines in action

NIAGARA

**BOOTHS
1109 AND 1111**

SEE OUR EXHIBIT



THIRTEENTH
INTERNATIONAL HEATING &
AIR-CONDITIONING
EXPOSITION
INTERNATIONAL AMPHITHEATRE, CHICAGO
FEB. 25-MAR. 1, 1957

everybody will be talking about Niagara

Make this your invitation to visit Niagara's Booths at the coming Exposition and see today's most up-to-date machines for sheet metal working. Operate them yourself and find out what they can do for you. Bring along your questions. Factory engineers will be there to answer them and to make your visit a profitable experience.

NIAGARA MACHINE & TOOL WORKS • BUFFALO 11, N. Y.

DISTRICT OFFICES:

Buffalo • Cleveland • Detroit • Indianapolis • New York • Philadelphia

Distributors in principal U. S. cities and major foreign countries

*America's Most Complete Line of Presses, Shears,
Machines and Tools for Plate and Sheet Metal Work*

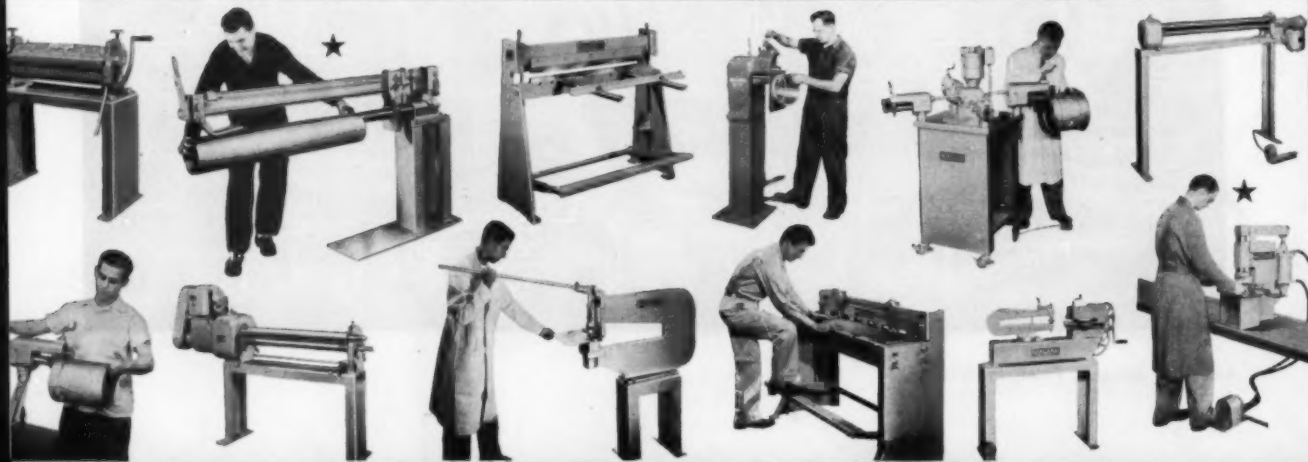
witness dramatic demonstrations of these job operations:

Shearing	Bending
Grooving	Rotary Operations
Rolling	Folding
Punching	Notching
Ring and Circle Cutting	Forming

★ on display for the first time

NEW: Air Power Notching and Punching Machine.
Fast acting; performs multitude of jobs.

NEW: Universal Power Groover. Closes both single
and Pittsburgh lock seams with one horn.





Everyone who has ever had any experience with gas central heating units has thoroughly learned one thing (and some have learned it the hard way) —

The heart of any heating unit is the heat exchanger!

That's why the durability of the heat exchanger is the most important thing about any heating unit. And that's why Temco's exclusive new Ceramic-Clad* is big news in the heating field!

The heat exchangers in all Temco Lo-Boys, Hi-Boys, Gravity Furnaces, and Counter-Flo Furnaces are finished in Ceramic-Clad—a high-temperature porcelain enamel finish that is impervious to rust and will never burn out.

*Ceramic-Clad**

pioneered by Temco, is similar to the finish used for jet aircraft combustion chambers. It's capable of withstanding temperatures far higher than any furnace will ever reach. And it completely eliminates the danger of rust from condensation when the furnace is used in combination with air conditioning for summer cooling.

And in addition to Ceramic-Clad, Temco brings you other outstanding features such as exclusive Uni-Port Burner and silent operation.

*TRADE MARK REGISTRATION PENDING



*Turn to **TEMCO** for the best in gas central heating*

TEMCO, inc.

NASHVILLE 9, TENNESSEE

"Gas Heating Specialists for the Nation"



"THE COMPLETE LINE OF GAS HEATING EQUIPMENT"

ROOM HEATERS • FLOOR FURNACES • WALL HEATERS • UNIT HEATERS
WARM AIR FURNACES AND AIR CONDITIONING

Temco, Inc., Department C-104
Nashville, Tennessee

Please send me catalog and full information on
Temco Automatic Gas Warm Air Furnaces.

Name.....

Firm Name.....

Address.....

City..... Zone..... State.....



You mean that
GREAT WESTERN GALVANIZED SHEETS
 will not flake, peel, crack
 or chip no matter how
we form them?

**We mean
 just that!**

If you want galvanized sheets that form *easily* into *any* shape . . . no matter how tough . . . without *flaking, chipping, cracking or peeling* . . . depend on GREAT WESTERN.

Galvanized by the most modern continuous process these quality sheets have the tightest zinc coating ever.

The sparkling bright finish reflects the permanence and inner quality that mean good looking jobs, lasting satisfaction and enduring protection against corrosion.

As for delivery — *and we mean fast delivery* — call GREAT WESTERN STEEL today. We carry large stocks of sheets and coils in a wide range of gauges, widths and lengths for immediate shipment.



**GREAT WESTERN
 STEEL COMPANY**

ESTABLISHED 1918

Extra Values

make the difference in
 Galvanized Sheet Steel Service
 from GREAT WESTERN STEEL.

Call Great Western: HEmlock 4-5800

General Office and Plant:

2300 W. 58th St., Chicago 36, HE 4-5800

Milwaukee Division: 2475 W. Hampton Ave., Hilltop 4-3092

REPRESENTATIVES IN PRINCIPAL MIDWESTERN CITIES



BETTY FURNESS SAYS:

**“Get ready for the
2 Biggest Sales-
Building Ideas
in Air Conditioning!”**

Now Westinghouse Opens Your Way
To More Home Prospects — More
Commercial Prospects — More
Air Conditioning Sales With 2
Great New Concepts.

YOU CAN BE SURE ...IF IT'S **Westinghouse**

See What's New from

INTRODUCING THE LEADERS OF



MATCH-MASTER

Units to Sell to Every Home

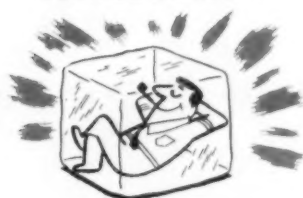
MATCH every home size—exactly . . .
MASTER your local weather!



BEAT HEAT!



CONTROL HUMIDITY!



SELL SOLID COMFORT!

NOW—16 Combinations to Master the Heat and Humidity where you sell!

It's new! It's a whole new way for you to sell complete home air conditioning! Westinghouse presents *air-cooled* MATCH-MASTER home air conditioners. This new concept in air conditioning is designed to MASTER heat and humidity where you sell and MATCH every home you sell to.

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What does this mean to you? Plenty!

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2. Combinations for dry-heat areas; combinations for wet-heat areas.

3. A tool to beat the keenest price competition by selling EXACTLY what the job needs, not having to supply a larger-than-needed unit.

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Decorator Color Styling —harmonizing trim!

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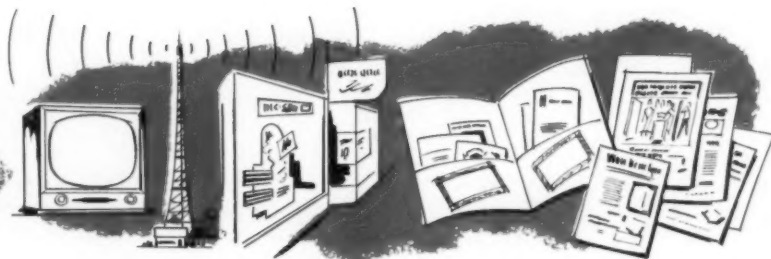
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- ☐ Please send me full information on MATCH-MASTER and STYLE-MASTER air conditioning units.
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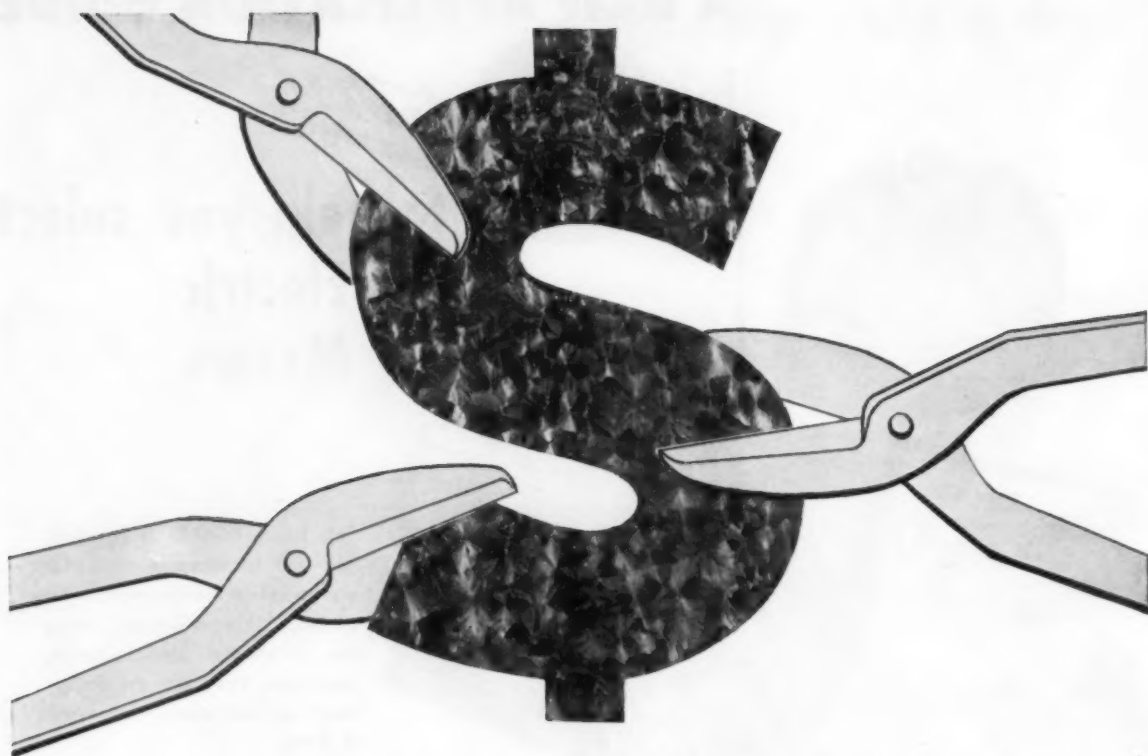
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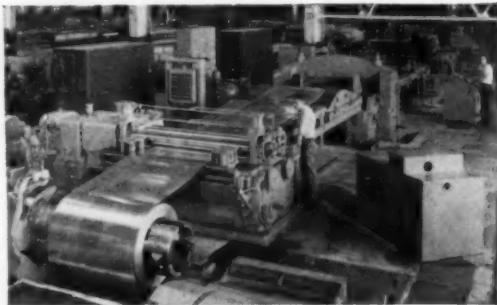
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Do You Know What You're Talking About ?

YOU CAN'T BEAT first-hand experience! Sure, you can get a lot of help — an awful lot of help — from what others tell you, from what you read, and from what your own logic lets you know must be so. But your own actual experience is your best source of information on almost anything.

We take up this somewhat "philosophical" subject for a purpose. We at American Artisan have read thousands of words and talked to hundreds of people over the years about summer air conditioning and its many advantages in comfortable, healthful, enjoyable living. But we "didn't know the half of it" until we, our associates, and our families had first-hand experience with summer air conditioning at home or in the office.

We knew, of course, that children sleep better, eat better and are better in hot, humid summer weather if they live in an air conditioned home. But we didn't realize how wonderful air conditioning can be until our own children proved it to us.

We knew, too — or thought we did — what air conditioning can do to promote a restful night's sleep during a hot wave. But we had to wake refreshed ourselves, glancing at the outdoor thermometer to see how high in the 90's it stood, before we really knew how good it was.

We also knew that one's working efficiency is much higher in an air conditioned office than in a hot and sticky one — with more heat and humidity, as well as dirt and noise, coming in constantly through the open windows. But we really learned it's so when our own offices were air conditioned, and we worked in peace, quiet and comfort — and with efficiency — right through the heat waves. (We did take a couple of minutes off one day to phone the Weather Bureau to see how hot it was.)

So here's what we're getting at:

Air conditioning at home and at the office is a boon to mankind (and to womankind and the kids, too). Summer air conditioning is bound to grow and grow in public acceptance, as more and more people actually experience it and are told of its many benefits. The more we who are particularly interested in speeding the public acceptance of air conditioning can do to spread the good word, the faster our industry will progress — and the faster the public will benefit.

So let's put our own houses in order! By that, we mean let's air condition them — now, for this summer! Every dealer-contractor selling and installing home air conditioning ought to live in an air conditioned home. So should his salesmen and his other people. And so should every sales and marketing executive and manufacturer and wholesaler salesman in the air conditioning industry.

In this way, we'll all really learn air conditioning's many advantages, and that its cost is far outweighed by its benefits. And really knowing these things ourselves, we can pass the good word along to the general public — our customers — much more effectively, much more forcefully, and much quicker.

We propose that, for 1957, every dealer-contractor and every manufacturer in this growing, important air conditioning business set up a program to assure that every one who has anything to do with the sale and promotion of home air conditioning will live in an air conditioned home himself before the year is up.

Accent on Complete Service Builds Sales



A SHOWROOM helps to bring in prospects who naturally would like to see the heating and cooling equipment before spending \$1000 or more and . . .

WHenever a customer is shown around the display room at the Calumet Sheet Metal Works, Hammond, Ind., owner Ben Flock makes it a point to stop in front of a red neon sign which says, "Complete Service." This is the company's business slogan, and Mr. Flock never fails to explain what it means to a customer in terms of assured satisfaction.

"The best sales point a dealer can use is the service he offers his customers," Mr. Flock says. "Complete service is much more than making a repair for a customer. It starts as soon as a person becomes a prospect. It includes such things as providing a good display room, so that a prospect may choose from a wide variety of models from the four manufacturers we represent. Every step in a sale and installation is directed toward completely serving the customer's wishes and best interests."

Showroom Is Air Conditioned

The company's modern display room is located across the front of a recently completed building. Off of the display room is an office area, and in the back are the shop and parts storage. Displays in the showroom feature highboy and lowboy furnaces, cooling units, conversion burners, water heaters, attic and kitchen ventilating fans, thermostats and dehumidifiers. The showroom is air conditioned for winter and summer.

The store front features large glass windows with a doorway at each side. The windows slant inward from



. . . while they're there this dealer sells them on his policy of complete service, which can make a customer a treasured asset

the center of the building toward the doors. The recessed area forms a natural canopy for the doorways, protecting them from the weather. It also permits opening the doors outward without blocking the sidewalk. The overhang of the roof protects the windows from excessive solar load during the summer.

After a customer has examined displays in the showroom and the company's policy of complete service has been explained, Mr. Flock emphasizes the size of his staff and the training and years of service experience they have had. He explains that quality workmanship by the installers and servicemen is a vital adjunct to the quality of the product in which the prospect seems most interested. Also, the prospect is told how installation, type of payment, balancing, and future service calls are handled to best serve his interests and to assure his complete satisfaction and comfort.

Service Form Shown Prospect

The prospect is shown a service form taken from the company's files to better explain what is meant by complete service. This form shows all pertinent data, such as equipment specifications, date of installation, service calls required, repairs made and their cause.

Each serviceman is given a copy of this form when making a call so he will be better prepared to service the equipment. By knowing in advance the type of equipment he will encounter on the call, the serviceman can



◀ **COMPANY KEEPS** a complete set of records on each customer to aid repairmen in making service calls. Mrs. Ben Flock keeps records up to date

ROUTING OF servicemen to provide quick and efficient service is planned by Ben Flock and his daughter Shirley who acts as service dispatcher

Service is your best sales point, this dealer says. And it's more than just making a repair. In fact, he starts serving his customers the moment they walk in



take along the correct replacement parts. This can cut the cost of a repair call by eliminating the need for a return trip to the shop for parts.

Frequently service calls are caused by the customer forgetting to replace filters and change humidifier plates. Each serviceman carries with him the exact size filters and plates required so that the change can be quickly made if needed.

Daily and Weekly Ads Used

The company's advertising program includes a daily classified ad for oil and gas conversion burners and a weekly ad on the builders' page. The weekly 8 by 5 in. ad briefly tells the service story and describes the products the company handles.

The sales staff consists of Mr. Flock and two other salesmen. Each attends manufacturers' factory schools to learn selling features of the equipment carried by the company. The salesmen also attend periodic refresher courses. Prospects who call the office in regard to the daily classified ad are turned over to the two salesmen. Mr. Flock handles inquiries from the weekly ad and also walk-in prospects.

The company's new building was designed by Mr. Flock, who also was his own general contractor. The building is 50 ft wide and 100 ft deep. In addition to the show room the building has a 15 × 12 ft office area, a 12 × 12 ft engineering office, a 7 × 35 ft parts

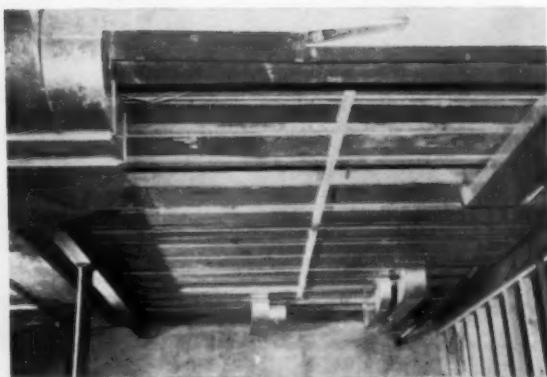
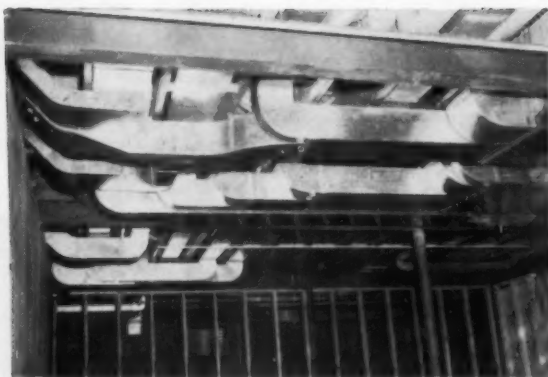
storage, and a 28 × 50 ft shop area. The remainder is used for warehouse space.

Part of Building Subcontracted

Cement, brick, and roofing work on the building was subcontracted, but the remainder was completed by the company's own staff. Mr. Flock has an electrician, two pipefitters and eleven sheet metal and furnace men on his payroll. Building costs were broken down by areas. The cost of the display room and office area was about \$9000 for the building shell and \$6000 for completion of the interior.

The complete service policy of the company applies to both heating and cooling equipment. The company's reputation for service has helped bring in sales for equipment even during what ordinarily would be the off season. For example, five residential cooling systems were sold during October, a month which normally would be slow in cooling equipment sales.

The policy of complete service has proven its value by providing a marked increase in annual sales volume. Until 1946 Mr. Flock restricted his business to industrial and commercial sheet metal work. Then he decided to enter the heating and cooling field. Since that time the annual volume of commercial and industrial sheet metal work has remained constant, but heating and cooling volume has grown steadily. Now the latter is responsible for 80 percent of the company's volume.



Lots and Lots of Ducts Help

When a man invests \$160,000 in a home he wants the best possible heating job. Here's one who got it—with a zoned system which features a pound of duct for each square foot of heating area and strategically located supply and return registers for the best air distribution obtainable

PURCHASERS OF large houses are usually very discriminating about every piece of equipment used in the building. Most people who spend the larger amount of money required have very definite ideas of what they expect to get for their investment. This attitude is often applied to the heating system. The purchaser of the custom built house described in this article spent \$160,000 for its construction and specified what temperature conditions he expected at certain times and in certain areas.

Earl Bohat, Conditioned Air Systems, Inc., Skokie, Ill., installed the system. He selected a 225,000 Btuh furnace and a 120,000 Btuh furnace to do the job. They divided the house into five zones, three to be served by the larger furnace and two by the smaller unit. The job required 4332 lb of galvanized steel duct work fabricated from 24, 26 and 28 ga sheets. In one area near the furnace there is a supply duct in each of 14 consecutive joist spaces between two parallel graduated trunk lines and an opposing wall. (See illustration at top of this page.)

The house is a two story building with a hip roof,

full basement and two car garage. The basement contains a recreation room and a laundry room, both heated. The garage is unheated. The stairway connecting the first and second floors is in a 14 × 18 ft stair well and runs around three sides of the stair well to reach a small second floor hall. The front entrance has two 2½ ft × 7 ft doors. The owner demanded adequate heat for this area and warned that he would not tolerate the entry of cold drafts when the doors were opened.

One Pound of Duct Per Sq Ft of Heated Area

On the second floor are four bedrooms and three baths. Each bedroom is about 15 × 20 ft. The first floor contains a 33 × 21 ft living room, 18 × 21 ft dining room, 17 × 14 ft study, 17 × 20 ft kitchen, 14 × 17 ft sun porch and a powder room. The living room, dining room, and study each have a 4 × 12 ft bay window. The living room and study each have separate fireplaces. The total living area of the first and second floors is 3960 sq ft. Note that 4332 lb of duct were required for



Two Furnaces Heat Five Zone House

3960 sq ft of heating area — slightly more than one pound per square foot.

Structural Problems Affect System Planning

As is often true, perimeter heating principles are not as easily applied on the second floor as on the first floor because in rooms having the greatest exposure, the joist space often runs parallel to the exposure. In this case, ducts must be run to the second floor through the partition wall stud space, and must, of course, be limited in size. Perimeter outlets were used where practical. Elsewhere, outlets were located high on the partition wall. High side wall outlets were selected because the air stream could be directed toward the exposed wall without interference by furniture and because a cooling system will be installed soon.

There are 13 outlets and nine returns on the second floor. On the first floor there are 22 outlets and eleven returns plus six outlets and two return openings in the sun room, which has a concrete floor slab and glass jalousie walls on three sides.

Return openings on the second floor were cut into the baseboards of the outside walls. A $\frac{1}{2}$ in. insulating board was placed behind the reverse elbow which feeds the duct that runs through the joist space above the first floor ceiling to a partition wall where it turns down to join a common return duct to the furnace.

Stair Landing Has Supply, Return Outlets

The supply opening in the upstairs landing of the staircase was placed in the baseboard about 8 ft from the exposed wall to direct warm air into the center of the open stair well. The return opening was also located in the baseboard, in position to take in cold air from the second floor landing before it could cascade into the lower portion of the stair well. Similarly, two return open-

ings were in the baseboards in each of the four bedrooms. These return openings not only permit setting up the most desirable air patterns in each room, but also eliminate the bugaboo of two-story house heating by preventing cold air from dropping to the first floor.

Heating the sun porch was a difficult problem because of the large glass area and the many small openings between the sections of each glass louver in the jalousies. Storm sash was not used during the winter although it was recommended by Mr. Bohat. Six $12 \times 2\frac{1}{2}$ in. floor diffusers were required to supply the air pattern needed to blanket the exposure. Two 6×12 in. return grilles recover the air that does not leak out through the openings of the glass louvers.

Fireplace Dampers Stop Chimney Heat Loss

The fireplaces in the living room and study each contain split type dampers to prevent heated air from being lost up the chimney when the fireplaces are not in use. To offset any cold air that might enter the room around the loose fitting chimney dampers, return air grilles were installed at one side of each fireplace. The fireplace chimneys were not connected to the set of chimneys used by the two furnaces.

The 8×12 ft service entrance from the garage has one supply opening to minimize the temperature difference between the unheated garage and the house. An incinerator was installed in this service entrance. A prefabricated chimney vents the incinerator.

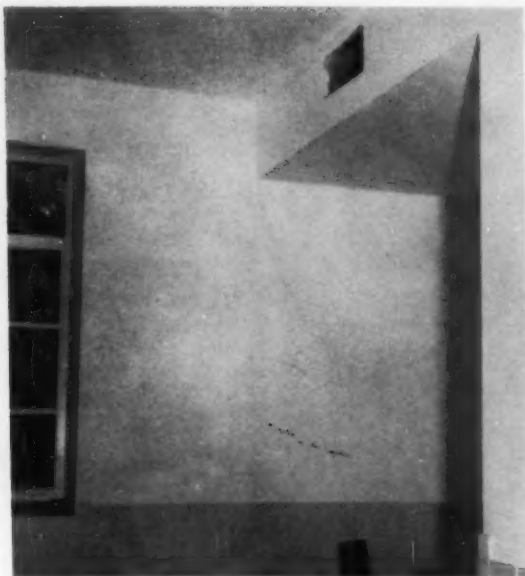
Considerable thought was devoted to selection of the bathroom supply openings to provide the best air distribution pattern possible when the cooling system is added at a later date. Because of the lack of return air openings in bathrooms, Mr. Bohat felt low wall outlets would produce a blanket of cold air on the floor when the door was closed. The register was located over the bathtub in the soffit so air being discharged into the

Careful Register Location Improves Air Distribution



SUPPLY

HIGH WALL supply opening on partition wall (left) is designed to blanket exposed wall. Earl Bohat checks fastening to prevent noise complaint later on, as Herb Foss looks on. Right: Soffit location for bathroom supply was decided upon to assure good air distribution when cooling equipment is installed



RETURN

RETURN GRILLE (left) on second floor is checked for backup insulation by the heating engineer and dealer. Right: Upstairs landing has return grille at right of door for collecting cold air before it can fall over the landing to the first floor



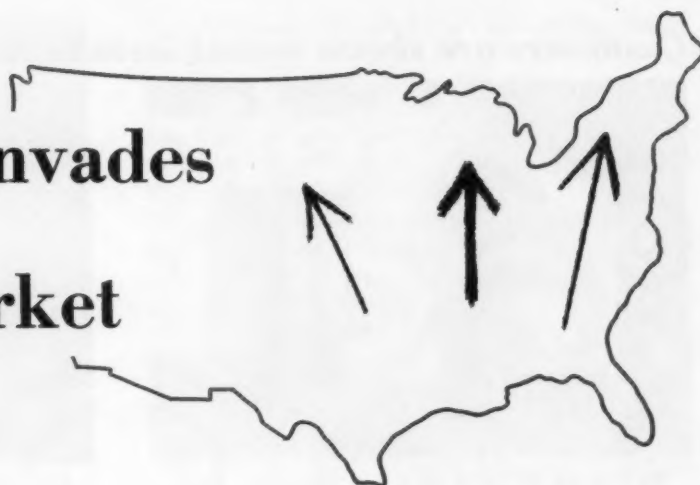
room would be directed away from the tub and shower areas and would have more opportunity to mix with the heated air in the room, creating the most desirable comfort conditions for people emerging from the bath.

Each of the five zones has its own thermostatically controlled damper motor and dampers. One zone (1050 sq ft) contains the living room and dining room. This area is a natural zone because the two rooms are connected by an archway. A second zone (1356 sq ft) includes the study, powder room, bedroom above the study, recreation room below the study and the lower portion of the

stair well. A third zone consists of the kitchen, service entrance, half of the laundry room and the sun porch (1041 sq ft). The fourth zone (665 sq ft) is comprised of the other half of the laundry room, a bedroom, two stories above and a bath. The fifth zone (625 sq ft) includes the master bedroom, bath and upper area of the stair well.

The editors acknowledge the cooperation of Mr. Bohat of Conditioned Air Systems and Herb Foss, Chicago district representative of Lennox Industries, Inc. in providing information for this article.

Heat Pump Invades Northern Market



... through a hard selling campaign
directed by a heating-cooling dealer who overcomes
objections to higher installation
and operating costs in cold climates by demonstrating
the advantages of the air source heat pump



SINCE A HEAT PUMP is still a curiosity to most prospects, they are shown a unit in actual operation and given a non-technical explanation of the role played by each of the component parts

THE NORTH is experiencing another invasion from the South. However, this one is less conspicuous than that of General Robert E. Lee in 1863. In keeping with the trend of modern warfare, this is an invasion by machines — machines called air source heat pumps.

Heat pumps have been growing in popularity in the South for several years. Florida Power Co. reports 3300 units operating in its territory. But many people have felt that rising operating costs at low temperatures would limit the heat pump's appearance in the North. Nevertheless, reports of installations in northern states such as Connecticut, Michigan and Wisconsin have been filtering into the warm air heating-cooling industry's information centers. One report of such an invasion comes from Bud Walker, J. R. Walker & Son, South Bend, Ind., heating-cooling dealer.

The invasion in this area has been aided by a low electricity rate of \$.015 per kilowatt which gives prospective buyers an attractive annual operating cost to consider along with the heat pump's other features.

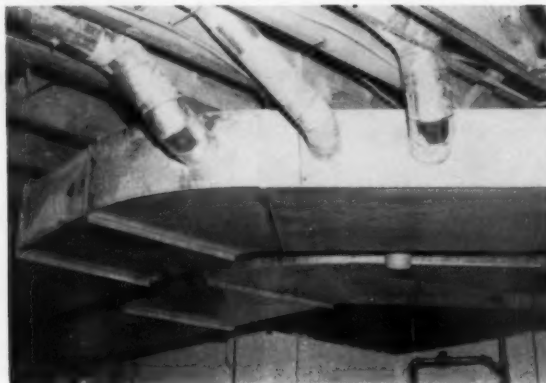
Lets Prospect See Installation

Mr. Walker has found the best sales approach is to offer a prospect an opportunity to see a heat pump that has been installed in a home and to give him a chance to talk with the owner. Mr. Walker arranges these visits at convenient times and plays host to the prospect and the owner by providing refreshments.

Customers are shown actual installations . . .



SOURCE OF OUTSIDE air is this "dog house" where discharge air flows through a duct. Supply air uses dog house as a plenum chamber



USE OF NUMEROUS supply ducts to carry low temperature-differential air to living areas is emphasized in sales presentation

. . . and operation is carefully explained



THIS LIVING ROOM has four supply air openings and two return grilles. Prospects are shown how they blend into the decorating scheme



THE IMPORTANCE of the year 'round thermostat is pointed out to prospects. Its heating and cooling characteristics are explained

The prospect is first given a non-technical explanation of how the heat pump operates. He is taken outside the house and shown where the air is taken into and discharged from the heat pump. Next he is shown what happens to the air when it reaches the coils. The path of the heated air is traced through the duct system and finally to the supply registers. The thermostat's operation is then explained so the prospect will understand how it controls the temperature in the living area to maintain a constant level.

The path of the air being returned to the heat pump is then described. When the prospect is back at the equipment, the subject is changed to the cooling operation and how it is performed.

As soon as the prospect begins to understand the general principles of the heat pump's operation, the conversation switches to the eight main sales points for this type of equipment:

- 1) A single piece of equipment is used for both heating and cooling.
- 2) There is only one utility bill to pay, which is spread out over a 12 month period.
- 3) There are no combustion fumes or soot to work their way into the living area.
- 4) No chimney is required.
- 5) Service problems are minimized because only one piece of equipment is needed.
- 6) Outside noise is seldom a factor.



IN PREPARING a proposal careful attention is given to each item needed for the installation. Bill Lawrence (left) and B. L. Walker examine each item to see that nothing is left out

7) Because air delivery temperature is lower, there is little change in temperature of the air passing through the duct system. Whether warmed or cooled, the air is delivered to its designated point at practically the same temperature as when it leaves the heat transfer coil.

8) The heat pump appeals to a sense of pride in ownership among consumers who like to be the first to have modern improvements.

These points are emphasized several times in each presentation. Their full meaning to the prospect is brought out by the use of examples which point up the added values heat pumps have to offer.

Benefits Compared to Added Costs

No effort is made to cover up or disguise the additional costs involved in both operation and installation. Prospects are told that they can expect an increase in operating costs of between 10 and 15 percent. The installed price of a 3 ton heat pump is usually around \$3500. This is about \$800 more than is asked for a combination heating-cooling unit of comparable capacity.

After frankly discussing the cost question, however, the sales presentation plays up the values received for this additional cost. For example, the salesman points out that the higher first cost can be offset in a new house by eliminating the need for a chimney. If a fireplace is desired it can be located without regard to the position of the heat pump. The need for exterior fuel tanks for oil or L.P. gas is also eliminated.

Year 'Round Sales Features Used

Much of the presentation used to sell year 'round systems is also used to sell heat pumps. For example, these points can be brought out:

1) Windows can be permanently sealed against dirt and air filtration.

2) Screens are not needed where non-opening windows are used.

3) Porches, terraces and verandas are no longer needed for relief from summer heat.

4) The air conditioned patio offers an exciting new feature. It can be built like a terrace, except that it can be used in all weather.

5) Simpler, unique and imaginative floor plans can be used because there is no need for cross ventilation.

6) Cost-reducing flat or low pitched roofs can be used more satisfactorily.

7) Less expensive building sites will be more useable. Breezy hills are unnecessary when the home is always cool. Sandy ground nearby is no handicap when windows don't have to be opened. It is easier to orient the house with the sun and the prevailing wind.

8) Windows can be designed and grouped for light, view, and best appearance rather than for ventilation, giving new design freedom.

9) Some windows may be omitted, along with awnings, shutters, drapes and blinds. This will save on building and furnishing costs, and can help preserve the lines designed into the house.

10) More wall space can be made available for built-in cabinets and storage.

To insure customer satisfaction, the Walker Co. does a careful job of engineering. Complete insulation is recommended for walls, ceilings, and floors over crawl spaces. Storm doors and sash are proposed for year 'round use. Exposed duct work in crawl space and attic is insulated.

Sound Absorbers Control Noise

To control noise, foam rubber matting is usually used under equipment as a sound absorber. Sound absorbing material is used to line short duct runs. Flexible connections are made between the duct system and the equipment plenum.

In addition, floor loading must be considered. Heat pumps installed by this company weigh about 100 lb per sq ft. For the outside intake $\frac{1}{2}$ in. copper mesh bird screen is provided. Adequate capacity and sizing must be provided, based upon summer and winter design temperatures.

The preparation of a formal proposal is a coordinated operation at the Walker Co. Each department is asked to submit its recommendations for the installation. The sheet metal shop submits prices for the duct system. The service department estimates costs for starting, testing and balancing the complete system. The engineer submits the equipment price and the cost of electrical wiring. The latter cost varies considerably with each installation. Finally, the office manager adds the operating overhead costs to determine the final selling price.

Mr. Walker leaves the coordination of these operations to his son, B. L. Walker, who works closely with office manager Bill Lawrence. This teamwork aids in keeping service and installation work on schedule and keeps equipment orders flowing smoothly.

How to Install a

Remote Air Cooled Condensing Unit



THIS SERIES of articles, under the general heading, " 'TRAINING PROGRAM' ... in Print," is designed to help dealers train their engineering, service, managerial and sales personnel in all phases of their operations. These articles are selected for their informative value and are presented as reference material for developing know-how among employees in situations which are likely to arise. Some of the previous articles in this series have discussed:

- electrical problems
- humidity control
- management techniques
- air distribution
- sales presentations
- school heating
- promotion ideas
- attic fans
- selling builders
- attention to details

This type of cooling installation is becoming more and more popular because of municipal water restrictions and because of modern trends in architecture. Here's how these units are installed plus a few of the problems to watch for



1 CARE EXERCISED during uncrating of the condensing unit can pay dividends when the customer inspects the completed job



4 EXTERIOR OF tubing is cleaned with crocus cloth; steel wire brush is used for insides of fittings

EACH YEAR the number of air cooled condensing units installed in residential and small commercial locations increases. One of the reasons for this trend is the customer's desire to locate machinery outside the living area. Another cause is the increasing municipal regulations imposed upon water consuming equipment. Installation of the condensing unit outside the air handling compartment of a year 'round system is known as a remote installation. Remote installations usually are accompanied by problems not encountered with self-contained packaged units. Precautions to be observed include keeping moisture, air and dirt out of the refrigeration system, and preventing the transmission of noise from the remote equipment to the building structure where it might be amplified to objectionable levels.

Cooling Installed All Year

The procedure described here for installing a remote air cooled condensing unit to a cooling coil (evaporator) located in a summer air conditioning compartment was performed by two journeymen mechanics employed by Robinson Furnace Co., Chicago. The company has four mechanics who are trained to install cooling equipment. While two of the men double as heating servicemen during the winter season, the other two mechanics continue as cooling installers, as the company conducts a vigorous cooling sales campaign every month of the year.

Unit Set On Slab

The condensing unit is usually located in an alcove or some other out-of-the-way place at the rear of the

house. The unit is set on an 8 in. thick concrete base. Extreme care is exercised in removing the packing case to avoid any misunderstanding with the customer over scratches and dents on the unit casing. Tools used to remove the crating material are screwdrivers, wrenches, claw hammers, and crowbars; each used in its proper place and with care.

The uncrated condensing unit is first set onto its selected site. A 24 in. clearance from walls or other obstructions is recommended to permit free circulation of air and to provide access for servicing. The unit is positioned so the air discharge is in the same direction as the prevailing wind. After the equipment is placed, it is checked for any discernible shipping damage, correct rating (from the nameplate data) and missing or damaged components.



2

AIR INTAKE clearance is checked against recommendations which call for 24 in. clearance from walls and other obstructions



3

MASONRY OPENING for refrigerant lines is enlarged to provide adequate clearance to protect tubes against chafing



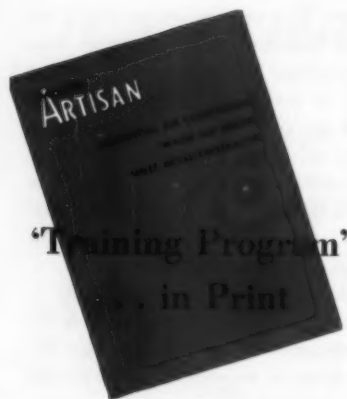
5

SLIGHT BENDS are made in hard drawn tubing by heating with torch and exerting pressure by hand (using asbestos gloves)



6

WHERE NUMEROUS soldered connections are necessary, small sub-assemblies make the work easier



Tubing size is determined from a chart which is based on the capacity of the unit and the distance between the cooling coil and the condensing unit. Correct suction line size maintains proper velocity of the refrigerant vapors so entrained oil will be

returned to the compressor. Correct liquid line size insures that enough refrigerant will reach the metering device in a liquid state to handle the heat load at the cooling coil.

While one man prepares the wall openings and supports for tubing runs, the second mechanic readies the line connections at the condensing unit for fittings and short sections of tubing. The fittings are cleaned with a steel wire brush and given a light coat of flux. The short sections of tubing are cut with a rotary tubing cutter and reamed to remove the burr, and the ends are cleaned with aluminum oxide cloth and covered with a film of flux. When the tubing is being reamed to remove the burr the end is held down so particles will not remain inside the tubing to work their way around the system and ultimately create an ob-

struction in the path of the refrigerant flow.

Heat Permits Bending

When hard drawn tubing is used for liquid and suction lines, and when slight bends are required, it is not necessary to use fittings to form the bend. Instead, the mechanics use a torch to heat the tubing where the bend is to be made. The torch is moved back and forth across the bend point to spread heat throughout the bend. Each mechanic wears an asbestos glove and when sufficient heat has been applied, the tubing is grasped on each side of the bend point and bent to the desired degree.

Small sub-assemblies can be made outside the condensing unit and cooling coil cabinets and put into place as units. One such assembly is that



7 TWO TORCHES help maintain recommended soldering temperature for large joints or points where heat is quickly drawn away



8 AUXILIARY VACUUM pump is used to evacuate air and other non-condensable gases from the system



10 PURGING OF the charging lines is first step to actual charging operation



11 ALL JOINTS are tested for leaks, first at low pressure, then at high pressure

used in the suction line at the cooling coil return header. To form the oil trap, a return bend fitting is located as near as possible to the cooling coil. This type of fitting is required when there is a vertical rise in the suction line. (Suction lines normally are pitched downward toward the condensing unit at a grade of 1 in. every 10 ft.)

Maintain Heat in Soldering

Soldering of copper tubing is done with a multiple outlet torch using acetylene as the fuel. Silver solder or a suitable substitute is recommended for the joint. On large joints or at points where the heat is quickly drawn away by attached framework it is advisable to use two torches, one to heat the connection, the second to replace the heat being

lost. (In soldering near a cooling coil where a thermostatic expansion valve is used, the thermal bulb should be detached from its permanent connection so the intense heat from the soldering operation doesn't create excessive pressure in the bulb and valve assembly. This pressure might cause a rupture or diaphragm distortion and consequently erratic valve operation.)

During all soldering operations it is advisable to keep a portable fire extinguisher nearby in case of unforeseen fire hazards.

Dryer, Filter Stop Particles

A dryer and filter or a combination dryer-filter are installed in the liquid line as near as possible to the metering device. The filter removes any foreign materials that may have

accidentally entered the system during the installation. (Small metal or mineral particles could completely or partially block the metering device opening, resulting in reduced cooling coil capacity and consequently an increase in living area temperature.)

The dryer is placed in the liquid line to remove moisture particles that may have entered the tubing during installation. Moisture inside the refrigeration system may cause copper plating of the ferrous metal parts used in the compressor and produce increased bearing friction, erosion at the valves and valve openings and a general reduction in overall operating efficiency. Dryers are usually filled with silica gel, an organic material that does not readily break down in the presence of moisture yet has a high degree of affinity to moisture.

Heat Exchangers Cut Flash Gas

Manufactured heat exchangers placed in the suction and liquid lines have proved very effective in reducing flash gas at the metering device. When used, heat exchangers are located as near the cooling coil as is practical. They may be installed either horizontally or vertically. When manufactured heat exchangers are not used, it is advisable to place the liquid and suction lines side by side for a distance of 10 ft and wrap the two lines with insulation. This makes a very effective heat exchanger. (Insulation should not be wrapped on before all joints have been tested for leaks.)

System Is Evacuated

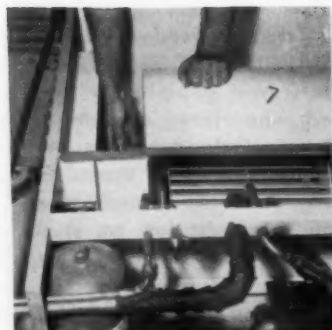
When all piping connections are made, air and noncondensable gas is removed from the system just prior to a pressure check for leaks. This is accomplished with the aid of an auxiliary evacuating pump.

An evacuating pump can be purchased as a factory assembled unit or made from an old condensing unit found around the shop. The unit must be capable of pulling at least a 29 in. vacuum.

9 REFRIGERANT DRUM is weighed before starting the charging operation and at the end to determine quantity of refrigerant added to system



12 ALIGNMENT OF the blower pulley and belt is one of the last steps in completing the remote installation. Lines are also wrapped with insulation tape to protect them against weather





'Training Program' . . . in Print

The evacuating pump is attached at the charging valve or at the gage opening of the suction line service valve at the compressor. A cloth is held over the end of the discharge line from the evacuating pump, and when the bulk of the air has been pulled from the piping, a decrease in the discharge volume will be noticed. The discharge line is then inserted into a can or beaker partially filled with refrigerant oil. A series of bubbles will be noticeable in the oil.

As the evacuating process continues, the bubbles in the oil at the discharge line will gradually disappear if there are no leaks in the piping system. The evacuating pump is permitted to operate from four to six hours to remove all non-condensable gas and moisture that entered the piping system during the installation process. (The mechanics usually time their evacuating operation to take place while they are working on some other nearby job.)

Check System for Leaks

When evacuation is completed, the gage port or charging valve is closed and the evacuating pump is removed. A testing and charging manifold consisting of a compound gage, a high pressure gage, two sets of valves and three flexible hose lines is connected to the system. The flexible hose connected to the compound gage is loosely attached to the compressor suction service valve gage port. The flexible line from the high pressure gage is loosely connected to the compressor

TABLE 1—RECOMMENDED LINE sizes for remote air cooled, residential condensing units assure proper velocity and volume of refrigerant

tonnage	Length of run in inches			
	up to 30 ft		30 to 60 ft	
	liquid	suction	liquid	suction
1	3/8	3/8	1/2	7/8
2	1/2	7/8	3/4	1 1/8
3	5/8	1 1/8	7/8	1 3/8

discharge service valve gage port. The third flexible line is tightly connected to the charging drum. (The charging drum is weighed before the attachment is made.)

The charging drum is set upright (to permit only refrigerant vapor to leave the drum) and the valve is cracked to purge the air at the loose flexible line connections at the suction and discharge service valve gage ports. Both flexible line connections are then tightened.

Soldered Joints Tested

Testing of the soldered joints is in two steps. First a low pressure test is made. The charging drum valve and suction service valve gage port are opened a few turns until a pressure of 15 to 20 lb is indicated on the compound gage of the manifold. The halide leak detector is then used to check each joint. Leaky joints must be resoldered. To resolder a joint, the refrigerant drum must be closed off and the pressure in the lines bled off to the atmosphere. It is advisable to leave one end of the line being soldered open to allow refrigerant va-

pors to escape during the soldering operation.

After all leaks are repaired, the low pressure test procedure is again performed. If no leaks are found at the 15-20 lb pressure, the refrigerant drum valve is opened to permit the pressure within the drum to equalize with that in the system. (This will equal the pressure corresponding to the pressure-temperature relationship chart for the existing temperature. At 75 F, refrigerant 12 will show 77 lb; refrigerant 22 will show 133 lb.) This is known as the high pressure leak test and will reveal leaks which may not have been located in the low pressure test.

Charging Operation Begins

The charging operation comes next. Usually a condensing unit contains a holding charge (sufficient refrigerant to maintain a positive pressure within the compressor, condenser and receiver, but not enough for the complete charging of a remote system). Refrigerant can be added as liquid or as vapor. The vapor method is preferred for most remote installations and is accomplished in this manner: After all joints have been tested and found to be tight, the receiver service valve is opened wide and the discharge and suction service valves are back seated. The condensing unit is operated (if the electrician has not made the wiring connections, a temporary power source is provided.) As the compressor operates, the charging drum valve is gradually opened until a pressure of about 15 lb above the suction line pressure is maintained. Under this arrangement the refrigerant will be drawn primarily from the drum into the system.

As the condensing unit continues to operate, the liquid line will begin to fill with liquid refrigerant. Feel-

WHAT'S YOUR PROBLEM?

The American Artisan's 'TRAINING PROGRAM' — IN PRINT will explain the whys and wherefores of some of the dealer's problems, tell what to do about them. You will want the members of your organization to study these articles carefully, keep them for future reference . . . If you have a problem you'd like to see covered, write Clyde M. Barnes, Editor, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

ing the liquid line as it leaves the receiver, the installer will notice that the line is quite warm at the beginning of the charging operation. As the line becomes filled with liquid, the temperature will become close to the surrounding air temperature. This is the first indication that the refrigerant charge is nearly complete. After the liquid line cools to approximately the surrounding air temperature, the charging drum is closed off and the system is allowed to operate with air blowing over the cooling coil. The suction pressure should balance off to equal a pressure equal to about 40 F (refrigerant 12 will show 37 lb, and refrigerant 22 will show 69 lb). The discharge pressure should also balance off to a pressure-temperature relationship equal to about 25 F above the temperature of the air used as the condenser cooling medium. (Example: 90 F outside air temperature plus 25 F equals a condensing pressure equivalent to 115 F. Refrigerant 12 would show 146 lb at 115 F and refrigerant 22 would show 238 lb.)

Coil Operation Checked

If a pressure below that calculated for the job is indicated, the system is undercharged. More refrigerant must be added. The same charging procedure is used. When pressures are found to be approximately those estimated for the job, the cooling coil is checked for operational effectiveness. This is done by attaching a thermometer securely to the suction line in approximately the same location as the bulb for the thermostatic expansion valve. (If a capillary tube is used, the thermometer is installed at the point where the cooling coil header joins the suction line.) The thermometer should indicate about 10 to 12 F higher than the temperature of the active portion of the cooling coil (check pressure-temperature relationship of the cooling coil by reading the compound gage).

If a temperature greater than 10-12 F is shown, more refrigerant is probably required. If, after more refrigerant is added, the thermometer

fails to reach the 10-12 F limit, the trouble may be due to the metering device and further charging of the system will have no effect on the cooling coil outlet temperature. The system can be considered fully charged when discharge pressure, suction pressure, liquid line temperature and cooling coil outlet temperature are in relation to their calculated values.

Final Check Completes Job

To complete the job, service valves are back-seated, charging lines are removed and gage ports are capped off. A final leak test is performed before leaving the job. The refrigerant drum is weighed and the amount of refrigerant added to the system is recorded on the installation record form. It soon becomes second nature for a mechanic to know almost how much refrigerant is required to charge jobs of similar sizes. Any deviations from the usual amounts are quickly noted and must be accounted for before leaving the job.

Final operation of the installation of a remote condensing unit is checking the condenser blower motor, pul-

ley and belt alignment, oiling bearings and tightening the grease cups. Removing shipping and hold-down bolts from all parts is a must to prevent noise transmission to the building. Supports for the suction and liquid lines should be securely fastened.

Lines Often Insulated

On many installations, the dealer will install an insulation covering for exposed liquid and suction lines. The most commonly used insulation of this kind is a rubber based corded tape which when overlapped, results in about 1/2 in. of insulation. This is also intended to eliminate sweating of lines which frequently occurs on hot and humid days.

The Robinson company feels that the extra precautions which must be taken on remote air cooled installations are worthwhile from the standpoint of customer satisfaction and often specifies this type of system even when conditions do not demand it—feeling that in the event of future water restrictions or a change of a customer's mind, any possible complications will have been avoided at the outset.

Publicity Can Aid Your Business

WHEN PUBLICITY is mentioned, people usually nod their heads in an "I know all about it" attitude, an article in *Peerless Electric News* observes. But most have only the faintest idea as to what publicity is.

Publicity is the systematic distribution of information about you, your people and your business, the article continues. Your business creates news that the public wants to know about.

Used properly, publicity can mean greater success for any business. And it costs almost nothing, thanks to America's free press. Editors are at your service. They only ask that the news about your activities be factual and interesting.

Direct selling should not be attempted through publicity. That is what advertising is for. Publicity should tell, not sell. By telling, it can create good will, which *can* sell.

What kind of news about your company is of interest to editors? Listed are such things as election of officers, new executive appointments, community projects, open houses, retirements, deaths, business comments, large orders, new construction, new products, promotions, trips, speeches, exhibits, new company affiliations. But this is only a partial list of news that will interest the editors.

It's to your advantage that editors are kept informed. The article suggests keeping an up-to-date list of publicity outlets in your area: newspapers, magazines, radio and TV stations and others. Become acquainted with the people in charge of news or editorial departments. If you want to put something over with a bang, develop an advance publicity program that keeps news flowing freely to every publicity outlet.

What's New in Chicago



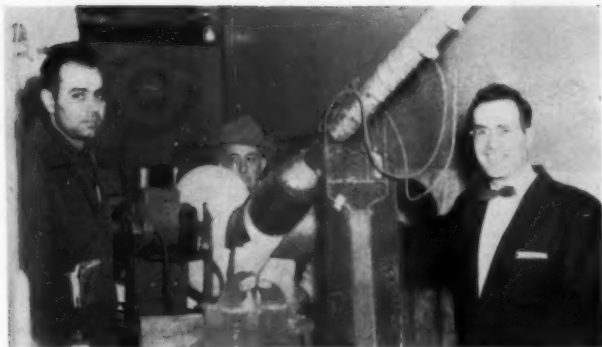
Here's a four page picture story that visitors to the International Heating and Air-conditioning Exposition being held this month in Chicago will find of particular interest. Jobs described here were installed during the past two years by sheet metal contractors who found that space limitation was one of the major problems to be overcome when installing duct work. Photograph captions point out the highlights of how air distribution systems and equipment were installed in six large office buildings to provide summer air conditioning. The Inland Steel building and the Prudential building are new structures; the other four, the Field, Standard Oil, Sinclair and American Dental Association buildings are modernization jobs



SOMETHING NEW in air distribution systems is being used at the Inland Steel Co. building. Combination of metal floor and ceiling panels from sheets of 18 ga metal form numerous $3\frac{1}{8} \times 3\frac{3}{4}$ in. channels. These channels are used to deliver low velocity air to units located at the perimeter of the building on the floor above the duct system. Here, sheet metal workers put a template into position to locate the openings to be cut into the channels. Duct work for this building is being installed by Narowetz Heating and Ventilating Co. Louis L. Narowetz is president and Lawrence O. Paul, vice president

SPECIAL BOXES are used to connect rectangular duct work to channels in the floor-ceiling panels of the Inland Steel Co. building. Boxes are made of 18 ga sheet metal and contain fire dampers to prevent the possibility of smoke transmission between floors in case of a fire. Narowetz Heating and Ventilating Co. is installing the air distribution system





TESTING OF HIGH VELOCITY ducts to handle air at 10 in. static pressure was specified by the mechanical engineer for the air conditioning job at the Field building. The volume of air to be handled by the duct area available required this static pressure. All joints are tested with soap suds while the duct section is undergoing the pressure test. Leaks are repaired and the test is repeated. Testing apparatus consists of a high speed blower and mercury U tube assembly. Illustration shows the job superintendents and the chief draftsman who, with a crew of five, prepared more than 200 detailed drawings. The job is being installed by the R. B. Hayward Co.



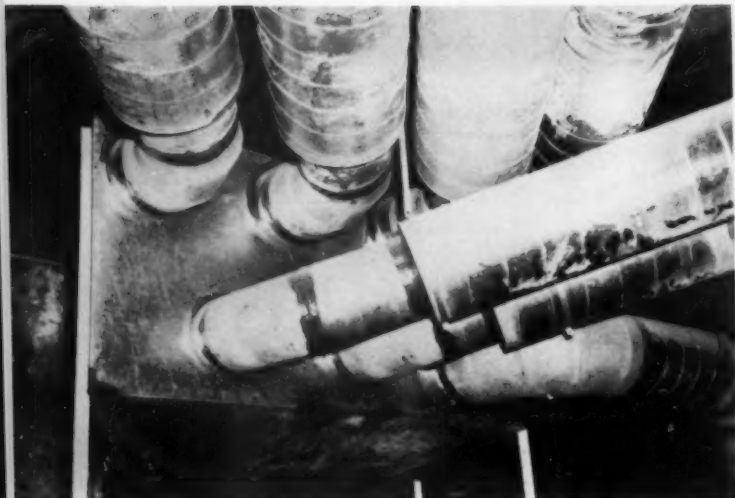
SPACE ISN'T always available inside an existing building for the duct work needed when summer air conditioning is being added. To find the space needed for supply ducts, architects frequently run the ducts along the outside wall as Robert J. Salinger of Naess and Murphy did at the Field building. The ducts are supported within a steel frame which is covered by curtain wall panels. Crews of nine sheet metal workers were used to install the tower ducts. R. B. Hayward Co., W. A. Kuechenberg, president, is handling the installation of the duct systems in this 800,000 sq ft office building.



CORRIDOR DUCTS occupy every available inch of space in the Field building where summer air conditioning is being added. Due to corridor height, duct crossovers could not be permitted. Shown in the photographs are hot air and cold air high velocity ducts, return duct, low velocity supply ducts and mixing boxes. A new dropped metal ceiling is installed when all adjustments are completed. The installation is being made by the R. B. Hayward Co.

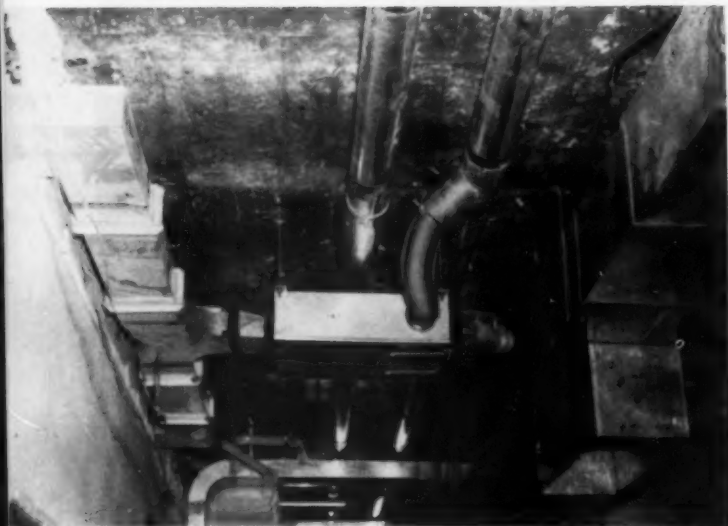
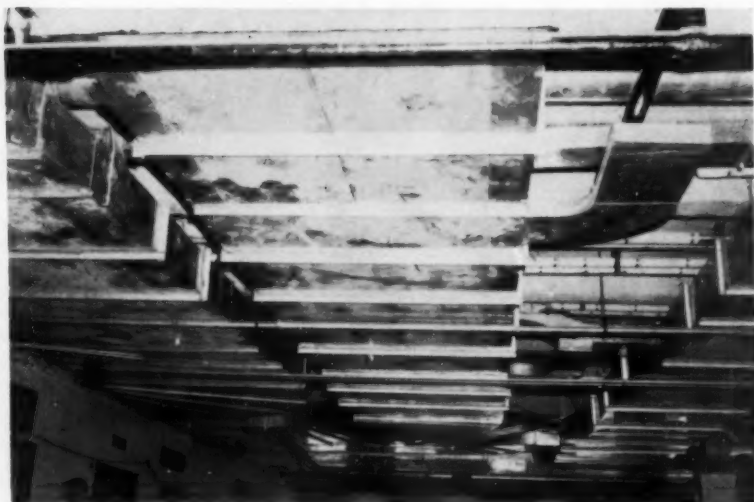
ALL DUCT SECTIONS in the Field building's new high velocity air conditioning system have welded joints. The duct sections were prefabricated in the shop of the R. B. Hayward Co. and the sections joined at the job site. A total of 120 mechanics were used on the job.





HIGH VELOCITY air system in the Prudential building used noise reducing sleeves in each of the main distribution trunk lines to keep noise levels within specified limits. Shown here are seven main line high velocity trunk lines pulling away from the blower discharge header. Duct work was installed jointly by the Jamar-Olmen Co. and the R. B. Hayward Co. A total of 1,800,000 lbs of sheet metal was used in the installation

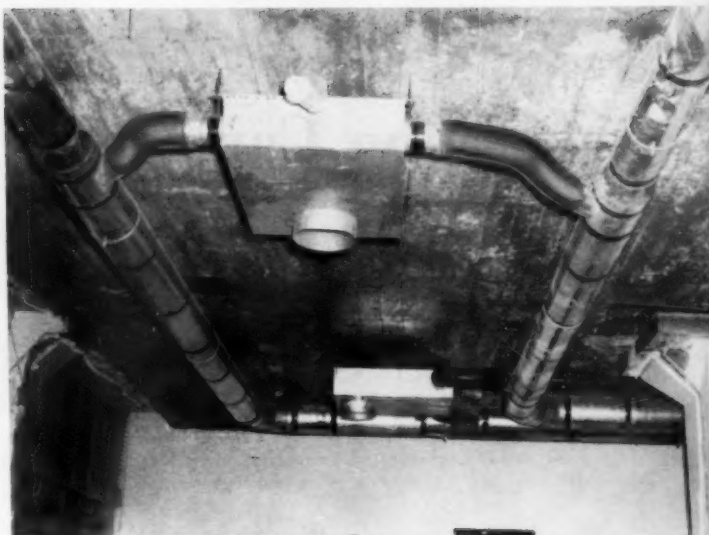
DUCT WORK often filled the space between the dropped ceiling and the underside of the next floor in the Prudential building. The R. B. Hayward Co., headed by W. A. Kuechenberg and the Jamar-Olmen Co., P. W. Olmen, president, formed a team to install the 25 miles of ducts in the 41 story building. Both high velocity and low velocity air distribution systems were used



HOT AIR, COLD AIR, low velocity and return ducts use the corridor ceiling to provide occupants of the American Dental Association building with tempered air the year around. The round ducts, in a high pressure system, supply hot and cold air to the mixing box shown in the center of the illustration. Low velocity air leaving the mixing box is discharged, through the openings in the wall at left, into office areas. Return air is drawn into the square duct at right from feeder ducts, one of which can be seen at the lower edge of the illustration

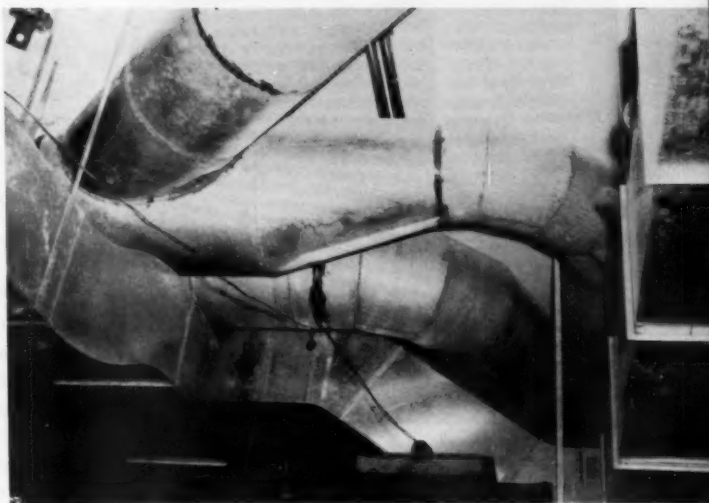


MIXING BOX controls the volume of high velocity hot air (duct at right) necessary to temper the volume of high velocity cold air (from duct at left) to provide the volume of low velocity air at desired temperature and humidity conditions for discharge into an office space at the American Dental Association building. The small motor (seen on the side of the mixing box) controls the mixing operation and is itself controlled by a thermostat located in the office area. All joints are taped and sealed with rubberized compound to reduce air leakage

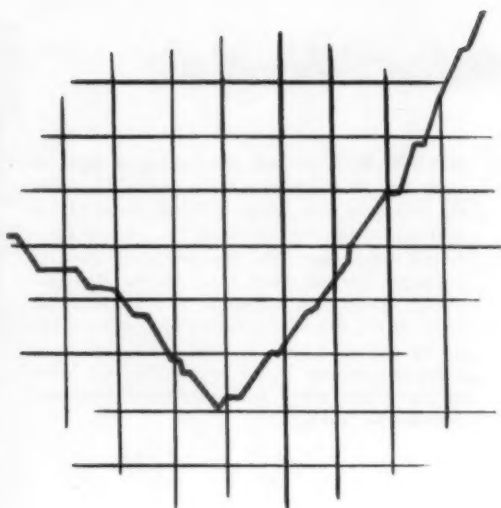


DUAL COOLING TOWERS to reduce operating costs and to eliminate the burden on already overloaded storm drains within the Loop area were installed at the Sinclair Refining Co. building by Narowetz Heating and Ventilating Co., headed by Louis L. Narowetz and Lawrence O. Paul

MAZE OF OVERLAPPING ducts form the air distribution system in the Standard Oil Co. building. Year 'round air conditioning was added to the 20 story structure in 1955. The round ducts are part of the high velocity air system and had to be installed ahead of the rectangular ducts forming the low velocity distribution system. Installers found working conditions difficult because of the limited work space. Note how the rectangular branch duct pulls off a trunk line which is beneath a high velocity round duct, then bends up over a second low velocity duct to parallel two high pressure ducts. The air distribution system was installed by Narowetz Heating and Ventilating Co., Louis L. Narowetz, president, and Lawrence O. Paul, vice-president



Promotion Campaign Reverses Slump On Sales Chart



When this dealer dropped his advertising program, he found his sales starting to slip. But he quickly bounced back with a new sales promotion program featuring direct mail and canvassing

WHEN SALES BEGIN to slump, it's time for prompt action. That's the opinion of George Rupprecht, president, Rupprecht Bros. Heating Co., St. Louis, who was faced with this problem about three years ago. His business had been hit by a noticeable drop in sales. His solution: im-

mediate development of a first-class sales promotion program. As a result, last year the company's domestic heating and cooling business reached a new peak.

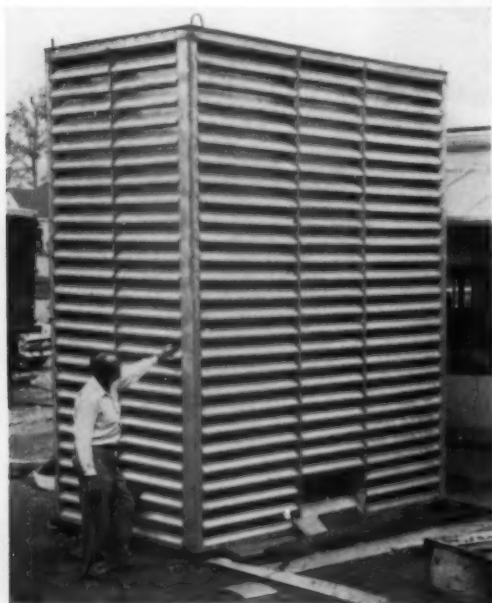
This company started in 1949 with nine employees working strictly as a commercial sheet metal shop. Then it decided to branch out into the residential field. To get a start, a sales promotion program was developed with great success. In fact the work grew beyond the company's capacity to handle it. Shortly thereafter all advertising was discontinued. This was followed by the drop in sales.

To offset the decrease in business, Rupprecht Bros. undertook a new sales promotion plan. Since 1953 newspaper, direct mail, and radio advertising have been used, and business has shown a continued growth each year. The staff now consists of 71 shop men and seven full-time salesmen. During 1956, residential cooling sales were four times more than before the advertising program had been abandoned.

Direct Mail and Canvassing Found Effective

Two forms of sales promotion have been found to be most effective by Rupprecht Bros. One is a direct mail card promoting replacement, cleaning and repair work. The other is door-to-door canvassing. These two activities are responsible for most of the company's furnace cleaning and replacement work.

The direct mail campaign reaches about 10,000 prospects, including home owners who have been past customers of Rupprecht Bros. and home owners who live in the immediate area of the shop. A complete file of old



AN AIR INTAKE louver 15 ft high is inspected by George Rupprecht before installation in an army ordinance depot



SALES PROSPECT list, built from direct mail and door-to-door contacts, is reviewed by H. W. Drese before determining best means to follow up



BLUEPRINTS of a proposed ventilating job are checked by George Rupprecht (left) and A. L. Totter before submitting their proposal

customers is kept in the office and used to prepare mailing lists. The city street guide is used to build the list of nearby home owners.

The direct mail piece is sent out early each summer. It offers as a summer special "vacuum cleaning of your hand-fired furnace, smoke pipe and chimney." This is a regular \$12 to \$16 job which is priced at \$7.95 during summer months. Two other cleaning prices are listed—stoker-fired furnaces for \$11.95 and oil-fired furnaces for \$14.

The mailing piece also mentions the company's other services, including heating and summer air conditioning, sheet metal work, and installation of attic fans. The prospect is reminded that a call to Rupprecht Bros. will get quick response.

Reply Card Is Included

The card used for the mailing is $9\frac{3}{4} \times 5\frac{1}{2}$ in. and is triple-folded to meet post office regulations for bulk mailings. Folding also makes it easy for the prospect to tear off one section of the card to mail back. This one-third becomes a self-addressed postage paid reply card of standard size. On the card there is space for the prospect to check the type of furnace to be cleaned. The return of cards from each mailing is about 4 percent.

Door-to-door canvassers are usually assigned to cover neighborhoods with houses 20 years old or more. The canvasser gives the home owner one of the direct mail cards after an introductory conversation. He then offers to make a free check of the furnace to determine if work is needed. If the furnace is old he finds an opportunity to talk to the home owner about a new heating system.

As part of his presentation the canvasser shows the prospect some of the company's newspaper ads. Often this will strike a familiar chord with the prospect since he may recall seeing the ad.

The company spends about 50 percent of its adver-

tising money on direct mail and the remainder on newspaper and telephone book ads, salesmen's presentations and point of purchase displays.

Coordinates Advertising with Manufacturer

The company takes full advantage of opportunities to coordinate its advertising with that of the manufacturer of the heating and cooling equipment which it sells. Recently the manufacturer and his local wholesaler ran a full page ad in a St. Louis newspaper. To follow-up on this ad, Mr. Rupprecht bought an 8×8 in. ad in the building section of the newspaper to play up his role as a dealer of this manufacturer's equipment.

The company's advertising schedule calls for two large display ads each month in the St. Louis weekend newspapers. Mr. Rupprecht also plans to schedule ads in a weekly community newspaper.

Another facet of the company's promotion campaign is the use of manufacturer's sales pamphlets. Each of the seven salesmen has a presentation book made up of the manufacturer's literature and samples of the company's local advertising. This allows the salesmen to present two sides of their story: quality installations by Rupprecht Bros. and quality heating and cooling equipment by the manufacturer.

So far television has been bypassed in the company's sales promotion program, but it is definitely a part of future plans. Under consideration is a 20 second spot film for use three times a week to promote summer air conditioning.

A large volume of residential work hasn't caused the company to ease up on its commercial and industrial sheet metal jobs. Recently the company completed heating and ventilation for several armories in Missouri. It also has received a contract to do the ventilation and dust collection work in St. Louis' new atomic energy plant.

It Pays to Think About Taxes All Year

Many business decisions can have an important effect on your tax return. For example, what method of depreciation should you use? Should you sell your truck or trade it in? Should you incorporate? The right decision can save you money at tax time

NO MATTER what size your business — big, medium or small — you have to think about federal income taxes sooner or later. The sooner the dealer starts to think about them the better his chance to save money when it comes time to file his return. All during the year he will be called upon to make business decisions that can affect his taxes.

For example, suppose you are buying a new truck. What would be the best method for you to figure depreciation on it? The government permits you to use one of several methods. The straight-line method allows you to depreciate the truck by an equal amount each year. In the declining balance method you depreciate it more during its first years, less in later years.

Accountant Will Explain

This is a question you should discuss with a certified public accountant, who can explain the advantages and disadvantages of each method and who can also verify the accuracy of your mathematical computations.

The CPA would first ask a number of questions about your business. He would need to know what your cash requirements are and what your profits are likely to be.

Suppose you tell him you plan to expand your business and will need

additional cash during the next few years. Under these circumstances, he might recommend that you use the declining balance method since it speeds up depreciation deductions.

With the declining balance method you may write off in the first year twice the amount you could deduct with the straight-line method. (See table.) You would be able to apply \$1000 instead of \$500 depreciation deduction against your income in the first year. You would thus reduce your taxes and have more cash available for business expansion.

Of course, you make this tax saving in the first part of the depreciation period at the expense of the second part. In later years your deductions will be less than they would be under the straight-line method. That is why it is important to consider what your future earnings will be before you select a depreciation method.

To take another example, suppose you intend to put in an expanded line of cooling equipment, and you expect this expansion will bring you higher earnings in a few years. In this case, it might be more advantageous taxwise for you to use the straight-line method, which will spread out depreciation deductions equally over the asset's useful life.

The straight-line method enables you, in a sense, to save for a rainy

day. When your earnings improve or increase you will have more substantial depreciation deductions to apply against them. There is usually no point in increasing a loss or reducing low earnings by claiming additional depreciation deductions you don't need.

New Equipment May Pay

A point to remember when deciding whether to buy new or used equipment is that second-hand equipment must be depreciated by the straight-line method. Under certain circumstances it may pay you in the long run to buy new equipment which can be depreciated by the declining balance method. The tax difference may substantially overcome the difference in price.

As another example of how you may gain a tax saving, suppose that you have an old truck you want to get rid of when you purchase the new one. You do some shopping and find you can either sell your old truck to a private party for \$500 or receive a \$500 trade-in from the dealer who sells you your new truck. At first glance, it doesn't seem to make any difference which you choose to do.

Let's assume this truck originally cost \$2500 and you have taken \$1000 in depreciation on it. This

means its cost for tax purposes is \$1500. You will "lose" \$1000 whether you accept the dealer's trade-in allowance of \$500 or sell to the private party for the same amount.

Loss Can't Be Deducted

But if you trade in your old truck, you can not claim a tax deduction for this \$1000 loss. All you can do is add the amount of the loss to the cost of your new truck and eventually receive tax credit for your loss in the form of slightly higher depreciation deductions.

On the other hand, if you make a bona fide sale of your old truck to the private party and buy a new truck separately from the dealer, you will have established a \$1000 loss which can be used as a loss deduction.

It is not always true, of course, that a loss deduction on this year's tax return is better than additional depreciation in the years to come. But as a general rule you should sell "loss" property to obtain a deduction and trade in "profit" property to avoid the tax which must be paid on any profit realized from the sale of an asset.


Should You Incorporate?

Another basic question with tax implications is whether to do business as a proprietorship, partnership, or corporation. You may have decided this question years ago, but it should be reconsidered from time to time. Of course, personal or business factors may force selection of a non-corporate form. However, there can be certain tax advantages in incorporating a new or expanding company, depending upon the earnings and the amount you may require for personal needs.

Proprietorship and partnership income is taxed at individual rates, which range from 20 percent to 91 percent. Corporate earnings are taxed at 30 percent on the first \$25,000 earned and 52 percent on the excess.

It might appear that if your in-

How would you figure depreciation on this truck?



	1st Year	2nd Year	3rd Year	4th Year	5th Year
Straight-line	\$500	\$500	\$500	\$500	\$500
Declining Balance	\$1000	\$600	\$360	\$216	\$129

If you expect your profits to increase in three or four years, it may pay you to use the straight-line method. However, if you need cash soon for expansion, the declining balance method can provide the money now through rapid depreciation and reduced current taxes.

come is relatively low the proprietorship-partnership tax rates would be more favorable. However, you must also consider the fact that the corporate tax carries with it the privilege of deducting a reasonable salary paid to the employee-owner. The employee-owner has to pay a personal tax on this salary, of course, but if he were not incorporated he would have to pay a personal tax on all the money earned by the business.

Tax May Be Lower

The employee-owner stands to benefit if the retained earnings of the company are taxed at a corporate rate which is lower than what the personal tax rate would be. Retained earnings may be accumulated in a corporation up to \$60,000 without further tax penalties, and even higher

if the corporation can prove a need for them.

This method is an advantage to an employee-owner only if these earnings are not continually being withdrawn as dividends. Therefore, you need to consider what your personal cash requirements will be. The corporation pays a tax on these earnings and you are also taxed on them when they are withdrawn as dividends. This double tax can nullify the tax advantages in incorporation.

By realizing that these common business decisions can affect the amount of tax you pay, you can take steps to gain for yourself the tax advantages that are provided in federal law. But you must practice year-around tax thinking. It will also pay you to seek professional advice about tax matters when you are in doubt about any business decision.



AIR CONDITIONING HANDBOOK

How to Solve Engineering
and Installation Problems

When Customer Complains Of High Power Bills...

... the cooling dealer must make his diagnosis from past experience with 1) refrigerant circuits, and 2) design and installation features of the system. Here are the likely trouble spots in each category

By S. W. Reid

**Air Conditioning Engineer
Gilbert Associates, Inc.**

LAST MONTH we saw how electrical trouble (an open electrical circuit) was indicated by a mechanical symptom (lack of cooling). This month we shall see how mechanical trouble (improper system operation) is indicated by an electrical symptom (high cost of power).

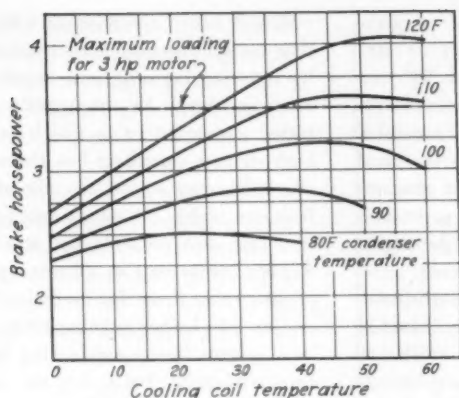
The air conditioning dealer must assume the role of doctor for ailing equipment. He must know his patient thoroughly so he can diagnose ills

from symptoms and properly prescribe measures which will correct difficulties that develop.

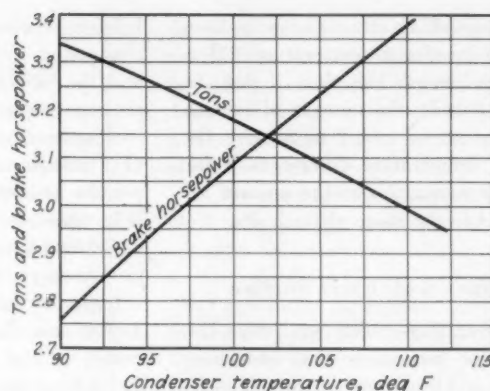
One of the symptoms of basic trouble in a summer air conditioning unit is high power cost—a relative matter which comes to light only when the actual cost from operating experience is compared with an anticipated power cost estimated by the dealer. It may also arise when an owner notices a jump in his power

bills from one season to the next or perhaps when he compares costs with another owner.

The precise reason why a summer air conditioner should consume more than a normal amount of electricity cannot, of course, be determined without inspecting the installation. The serviceman, however, must be familiar with the various possibilities so he knows what to look for when he calls.



1 HORSEPOWER RATING for 3 hp hermetic compressor is affected by changes in condenser temperature with given evaporator temperature



2 HIGH CONDENSING temperature (in actual 3 ton self-contained cooling unit) increases horsepower requirement, decreases compressor pumping capacity

The mention of high power cost immediately suggests a high condensing pressure to one who is familiar with the operation of a refrigerant system. There are, however, a number of other reasons for it as we shall see. As a start in this direction, we shall broadly classify such reasons first as those which originate in the refrigerant circuit and second as those which originate in the design or installation of the summer air conditioning system.

In an article in December, 1956 *Artisan* we discussed some basic facts about compressor horsepower as it is related to the refrigerant cycle. For a given system it was shown that horsepower is affected most by a change in condensing pressure and to a lesser extent by a change in suction pressure. Take, for example, the 3 hp compressor rating given in Fig. 1. At a normal condenser temperature of 100 F, a normal 10 deg range of coil operation between 35 F and 45 F has very little effect on horsepower. In contrast, a change of 10 deg in condensing temperature from 100 F to 110 F at an average coil temperature of 40 F increases the horsepower requirement more than 10 percent.

High horsepower is not the only result of high condensing temperature. We have discussed in many previous articles how compressor pumping capacity, and therefore unit cooling capacity, are decreased by

such operation. The overall result is that the owner gets less cooling per dollar expended for power. Fig. 2 is a graphical representation of the effect of condensing temperature on capacity and horsepower for an actual 3 ton summer air conditioner.

Condenser Must Remove Heat

Let's look at some of the reasons for high condensing temperatures and corresponding pressures. The function of a condenser is to get heat out of refrigerant and into a heat sink, either water or air. Heat will not flow unless a temperature difference exists. Thus, it is always necessary that the refrigerant in the condenser be at a higher temperature than the available temperature of the cooling medium to which the heat must flow. Heat transfer is expressed mathematically as:

$$Q = U \times A \times Td$$

where Q is heat, U is a heat transfer factor which varies with the type and condition of the wall separating the refrigerant from the water or air and the velocity of the fluids, A is the area of the wall separating the fluids and Td is the mean temperature difference between the fluids.

The equation tells us that the amount of heat a given condenser can handle will vary if any one of the three factors on the right varies. For instance, a certain water cooled condenser might be quite adequate when

it is new and has clean tubes. During use its tubes gradually receive a deposit of scale from the water. This gradually decreases the value of U , which in turn causes the refrigerant system to operate at a gradually increasing condenser temperature as it tries to push the same amount of heat through a wall that is becoming more and more resistive to heat transfer.

Transfer Surface Adequate?

The amount of heat transfer surface in a given condenser (A in the equation) might be considered as non-variable. However, an excess charge of refrigerant can effectively reduce the amount of surface that is active. In a water cooled condenser the excess collects as liquid in the bottom of the condenser shell and covers the tubes, preventing new vapor from reaching them. In an air cooled condenser excess refrigerant can collect in the lower tubes and take them out of active condensing service.

From an inspection of the preceding equation, one might assume it would be possible to operate with a very minimum difference in temperature (Td factor) between the refrigerant and the air or water merely by putting plenty of surface (A factor) into the condenser. Unfortunately, if one were to attempt a practical design on this basis, he would discover that he quickly reaches a point

of diminishing returns when he tries to design for a temperature difference of much less than 5 deg. In other words, the amount of surface that must be added to achieve the lower temperature differences is far out of proportion to the amount required in the range above 5 deg.

Designer Adds Extra Surface

In creating quality equipment the designer recognizes that condenser tubes will foul, and he installs sufficient extra surface so the condenser will operate efficiently even with some fouling. It is, of course, possible to skimp on surface by basing designs on clean tubes. Such condensers will work fine for a while, but they react quickly to even light scale deposits with a resultant upward trend in condenser pressure.

So far we have seen that tube fouling with scale deposits and tube flooding with excess liquid refrigerant can raise the condenser pressure and correspondingly the compressor horsepower of a refrigeration system. In effect, fouling reduces the U factor and flooding reduces the A factor. The third factor on the right side of the preceding equation is T_d (temperature difference between fluids). It is affected in part at least by the amount and temperature of the water or air available. To absorb a given amount of heat from the refrigerant, a small amount of water or air would have to leave the condenser at a higher temperature than would a greater amount of these media. Correspondingly, the condenser temperature would have to be higher with smaller coolant quantities than with the greater quantities.

Three Ways to Cut Costs

In summary, so far as the condenser is concerned, compressor power costs can be kept to a minimum by:

- 1) Keeping the condenser water tubes (or fins for an air cooled condenser) clean.
- 2) Avoiding an excess charge of refrigerant.
- 3) Maintaining an economical

balance between the cost of using the condensing medium (water or air) and the saving or penalty in compressor power cost if more or less cooling medium were to be used. (For instance, it would not be good practice to increase the flow of water if its additional cost would more than offset the saving that could be shown in the compressor power cost).

Improper functioning of the condenser is only one of the potential causes for high power costs related to the refrigerant circuit. Any maladjustment which reduces the circuit efficiency will cause it to operate longer than normal and thereby consume more than normal power. A shortage of refrigerant, for instance, reduces system capacity and extends running time. Likewise, a clogged filter, by reducing air flow over the

coil, will cause operation at a lower-than-normal suction pressure, thereby reducing capacity and increasing running time. An improperly adjusted expansion valve which causes high suction superheat has the same effect. So does a partially closed refrigerant valve or some obstruction in a line such as a clogged strainer. A worn compressor or a broken compressor valve make for inefficient operation and longer running time. Air in a system boosts condensing pressure artificially, but it has the same effect on power as high head pressure created by faulty condenser operation.

Consider Outside Factors

The second category of reasons for high power costs include those which originate outside of the refrigerant circuit, yet are part of the summer air conditioning system.

During the first season, the owner has only the dealer's estimate against which to judge his costs. The best way for the dealer to stay clear of trouble in this respect is, of course, not to provide the owner with any advance power cost estimates. If he must do so, however, he should not make any casual guesses which may not be taken lightly by the owner when the actual bills start to come in.

Reasonably accurate estimates of power costs can be made provided the cooling load has been calculated with care and provided the average number of cooling hours per season are known for the particular locality. The ASHAE Guide may help in this respect. The dealer, of course, can also build up an experience file based on previous installations.

Check Heat Gain in Duct

Many factors are involved in load estimating which can affect accuracy. Short form methods may overlook certain of these factors which can have a considerable influence upon load and consequently upon operating time and power cost. One such factor is the heat that enters uninsulated ducts which pass through unconditioned spaces. This factor is

THIS CONTINUING SERIES OF ARTICLES COVERS . . .

. . . all aspects of residential cooling, beginning in the August, 1952 Artisan with a complete rundown on:

FUNDAMENTALS . . .

. . . in a series of 20 articles which described the basic operating conditions of residential cooling equipment. Next, we turned to:

SPECIFIC PROBLEMS . . .

. . . of maintenance, service, installation and management, describing new techniques and presenting pointers on solving problems common to residential cooling. The current series describes:

CASE HISTORIES . . .

. . . and known problems which have actually been experienced and reported by dealers. Engineering, installing and servicing of cooling systems and their components are discussed by the author in answer to actual problems expressed by industry members.

especially important in residential work where the desire to keep initial costs down sometimes leads to false economy during installation. All ducts carrying conditioned air to and from the unit should be insulated at points where they extend outside the conditioned space if maximum operating economy is to be achieved. Information for estimating the heat gain in ducts can be found in the ASHAE Guide. Duct insulation should be protected by a vapor barrier when duct temperatures drop below the dew point of the surrounding air. Otherwise, vapor can penetrate the insulation and condense on the metal duct surface. This adds to the cooling load since all heat removed in condensing the vapor enters the air stream and is carried back to the cooling unit. In addition, the moisture reduces the effectiveness of the insulation as a temperature barrier.

Note Latent Heat Sources

Another factor in the cooling load calculation that may sometimes be overlooked is an unrecognized source of latent heat. In making his survey, for example, the dealer may not notice that the floor of the crawl space has not been covered with roofing paper. An interior exposure of this type can evaporate large quantities of water into a house—especially if the level of ground water adjacent to the house is high.

Along the same line as above, frequent use of an unvented clothes drier can impose on the equipment a moisture load that may not have been anticipated in the original calculation. Moisture from cooking is usually ignored in residential work, but any unusual activity of this type that would impose a continuing load on a cooling system should be noted in the original survey.

Outside air constitutes a potential source of unforeseen cooling load. When the dealer makes his calculations, he usually allows enough cooling capacity to handle a certain amount of outside air which infiltrates through doors and windows or is brought in directly through the air

What Is 'Air Conditioning?'

True air conditioning provides comfort in all seasons of the year, according to the American Society of Heating and Air-Conditioning Engineers. The ASHAE has just adopted a new, simplified definition of air conditioning, which reads as follows:

"Air conditioning is the process of treating air so as to control its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space."

conditioner. In some cases considerably more air will enter than he anticipated. If this happens, the unit will be doing more work than intended and will use more power.

Outside Air Load Overlooked

The problem of excess outside air is not always solved simply by closing a damper. The author recalls two different jobs in which the fact that outside air was overloading the cooling equipment was not easily recognized. In one case an air cooled condenser in the basement of a house was arranged to pull air from the basement through the condenser coil and discharge it to the atmosphere. The dealer did not realize at first that

the same quantity of air being removed from the closed basement had to enter by infiltration through windows and doors in the conditioned part of the house and so become part of the cooling load.

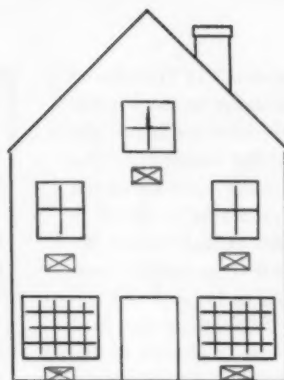
In the other job the blower section of a self-contained unit had to be mounted separately from the cooling section because of limited head room. The field-built connection between the blower and the cooling section was poorly constructed and had a hidden air leak at the top. In operation, the blower was pulling in great quantities of outside air which bypassed the cooling coil. As would be expected, the unit ran continuously and was not able to control space temperature. A piece of tape applied to the crack solved the problem.

We have been considering various ways in which a cooling load can be higher than anticipated in design. Most of these so far discussed can be kept under control by careful analysis and installation. There is one very common practice, however, over which the dealer has no control. It is the owner's practice of keeping the thermostat set at lower than design temperature. In residential work particularly, where most of the load comes from the outside temperature and from the sun, an inside temperature only a few degrees below design represents a good percentage of the load. The dealer can anticipate trouble from this source by explaining the significance of such practice to the owner so he knows what to expect when the bills for electricity arrive.

IN NEXT MONTH'S ARTISAN you'll find articles on . . .

- A profitable furnace cleaning business which doubles as a source of sales leads
- Adapting a packaged cooling unit to the heating system in a lake cottage
- How a warm air heating system answers demands of a limited budget for heating a new school
- A sheet metal contractor who solved an excessive corrosion problem by using porcelain enameled duct

A dealer recommends:



'A Register Under Every Window'

... as a national slogan to give the public
a measuring stick to help them evaluate more effectively
the adequacy of a residential air distribution
system. Summarized here is a speech by Ray Quiggan,
Cleveland dealer, presented at the NWAHACA convention

WE, AS MEMBERS of the Cuyahoga County Sheet Metal Contractors Association, have come to a conclusion. The only way we can sell the type of heating system that we believe should be sold is to sell it to the consumer — the person who is buying the house or who is going to live in it. We know the builder will buy a better heating system when his prospects ask for specific comfort conditions within a house.

For example, I would like to tell you how the plasterers in the Cleveland area took their problems to the public. It may also have happened in your area. A few years ago dry wall construction was making great inroads in our city. The builders liked it because it speeded up construction. It was becoming increasingly popular.

It was, that is, until the plastering contractors started their advertising and promotional program, selling the idea that there is no substitute for plaster. They inferred that anything else was an inferior substitution. They repeatedly suggested that when you look at a house you should knock on the walls and ask, "Is this real plaster?"

Plasterers Were Successful

They were extremely successful with this program. Even today, three years later, prospective home buyers will knock on the wall and ask, "Is this real plaster?" And in almost every case today, the answer is yes.

Other dealers and manufacturers have formed national groups to promote their products or sell their ideas to

the public, much the same as the plasterers did in Cleveland.

Here are some of these groups and slogans they have used in their promotion campaigns:

- 1) American Dairy Association — "Just like milk, real butter belongs on your family table."
- 2) Glass Container Manufacturing Institute — "It's written all over her face — what comes in glass tastes good."
- 3) American Coffee Bureau — "Cool off with coffee."
- 4) Sugar Information Inc. — "Go on a diet and still eat sugar."
- 5) Canvas Awnings Institute — "Keep interiors cool and shady with canvas awnings."

Industry Deserves Bigger Share

These people are trying to get a larger share of the consumer's dollar. We in Cleveland would like to conduct a similar program for our Certified Heating Systems. If there is any industry that should get a bigger share of the public's dollar today, it is the warm air heating industry. I don't have to tell you that a good heating system used to cost 10 percent of the value of the home, but today you can get what some people call a heating system for only 2½ percent of the value of the house.

I checked with a furnace manufacturer recently and found that he was selling a 150,000 Btu furnace to the dealer for \$305 in 1950. Today he sells the same size furnace for \$246. On the other hand, a popular make automobile sold to the dealer in 1950 for \$1200. Today the same model costs the dealer \$2100. We should not

[Note: Mr. Quiggan spoke at the 43rd annual convention of the National Warm Air Heating and Air Conditioning Association in Cincinnati. He is president, H. Quiggan & Sons, Cleveland dealer, and also treasurer, Cuyahoga County Sheet Metal Contractors Association.]

be fighting among ourselves, but rather fighting together to get a larger share of that consumer dollar. And I think we should do something about it now!

If the dealers and manufacturers in other industries can get together to sell a common idea, I believe that we in the heating industry can do the same thing. I'd like to present some thoughts on a national plan for the warm air heating industry. This plan does not have the sanction of any group except the Cuyahoga County Sheet Metal Contractors Association. However, I feel such a plan would help our program in Cleveland, and it could help every local association, every manufacturer, distributor, jobber and dealer in our industry.

Plan Has Two Parts

The plan I want to present is simple. It has only two parts:

- 1) We should sell the consumer what's good for him.
- 2) If it's for the consumer's benefit he should pay the bill.

Let's analyze the first part, what is good for the consumer in our business? A good furnace? Yes. But it goes further than that. He should be sold a good heating system, a good system of distribution that will keep him comfortable any place in his home.

I believe the Certified Heating Plan is the program to sell. However, as I said before, we've got to sell this plan not only to the builder and to the dealer, but to the customer. And we have to sell the plan so well that the customer will actually ask the builder or the dealer for a Certified Heating system.

Certified Heating alone is a vague term. I've been giving a lot of thought to how we can sell the idea to the consumer in a simple, graphic way, such as knocking on the wall to see if it is plaster. It should be a short sentence that would catch on and be remembered. It should enter a customer's mind when he walks into a home. He should be able to ask the question when he's upstairs in the house. My suggested selling slogan is, "Do you have a warm air register under every window?"

I am suggesting that we run local and national advertising promoting the Certified Heating Program and asking the home owner "Do you have a warm air register under every window?" We'll be selling perimeter heating, we'll be selling the Certified Heating Program, and we'll be selling better heating systems than we've ever sold before.

This program is a natural for the older house field. We've got to make the customer conscious that there is such a thing as a no-draft air heating system. Customers with older homes would call their dealer and ask, "What is this talk about a warm air register under every window?" The dealer then could explain that they can have a Certified Heating system in their home and still use their existing furnaces if they want to do so.

I believe that if the Certified Heating Program and this slogan, or a similar one, were repeatedly sold to the public, it would result in better installations and more



PUTTING HIS recommendations into practice, the author, Ray Quiggan, explains to prospects a proposed air distribution system which provides a register under every window

work for dealers. We would get that larger share of the consumer's dollar.

Time to Think Big

It is time to think big. Cutting corners and cutting prices are obviously not the ways to get more of this consumer dollar. When the price of a furnace drops over 19 percent from 1950 to 1956 while the price of a car increases 75 percent in the same period, there is something radically wrong. And when a heating system drops from 10 percent of the value of a home to only 2½ percent, I think it's time we dealers found out how long we can continue to go in this direction.

The Certified Heating Program could be our salvation. It is my belief that if the Cuyahoga county association had an advertising budget equal to \$1 for every furnace sold in its area to promote Certified Heating and to promote the selling slogan, "Do you have a warm air register under every window?", we would soon be selling better heating installations than ever before. However, we would have to sell our slogan so strongly that every time a customer looked at a window he would automatically look for the warm air register.

I also believe that if this program were started in our area, builders would soon have customers asking, "Why don't you have a register under that window?" After four or five house buying prospects had asked this question, the builder would probably call his heating dealer and say, "You'd better get over here and install some registers under these windows."

Our association's plan is simple. Give it some thought. It could pay off by putting:

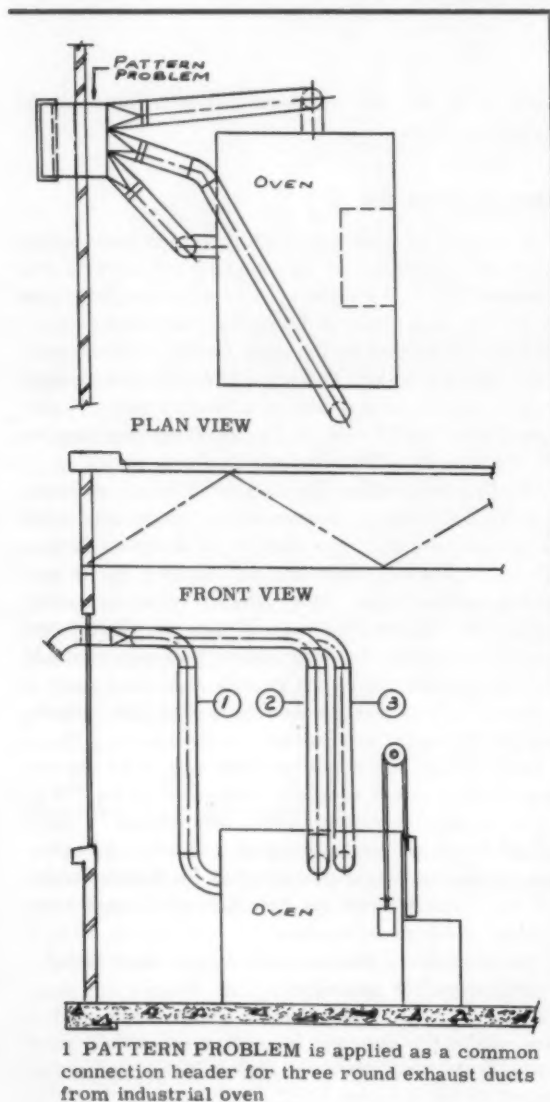
- 1) A warm air register under every window, 2) a more comfortable customer in every home, and 3) more money in the bank for every dealer, jobber and manufacturer in the industry.

Here's Pattern Layout for a

Three Way Offset Rectangular to Round Fitting

. . . applied here in an industrial exhaust system
as a rectangular connection header joining three round ducts at the point of exhaust

THE PROBLEM this month was taken from an industrial oven exhaust system. The oven was positioned close to the building wall, as shown on Fig. 1. The practical method of exhaust was to remove a section of window glass, install a vent to the outside and install flashing.



Note that the fitting is symmetrical about the center line on the end view, and that all three ducts are equal in diameter. From this analysis, we conclude that by transferring the $\frac{1}{2}$ in. half width from the end view (Fig. 2B) to its related position on the front view as shown by the three sets of lines marked XX (Fig. 2A) the fall distances for each corresponding line on the front view will be accurately produced. This method will eliminate the need for the end view drawing.

Given the front and end views of a three way offset rectangular to round fitting, the following is a step-by-step analysis of the pattern problem solution. (Note: The end view (Fig. 3) is projected vertically from Fig. 2. This view is drawn for clarification only.)

Simplified Method Drawing, Fig. 2 —

a) Draw the 3 in. horizontal line 10-11. From point 10, measure to the right 1 in. and $1\frac{1}{8}$ in., and at these points draw lines perpendicular to line 10-11. From line 10-11, measure $\frac{7}{8}$ in. up both lines and mark the points 21 and 22.

b) From point 10, measure to the right $\frac{3}{8}$ in., $1\frac{1}{8}$ in. and $\frac{3}{4}$ in., and mark the points 29, 30 and 31. From point 29 draw the vertical center line marked C L (perpendicular to line 10-11). Measure upward on the center line the given $1\frac{1}{2}$ in. and $\frac{1}{4}$ in. lengths, and mark the points 32 and 33. Through the points draw lines perpendicular to and extending on both sides of the center line. Measure $\frac{1}{2}$ in. on both sides of points 32 and 33 and mark the points 15, 16, 23 and 24. Draw the lines 23-15, 15-10, 24-16 and 16-21.

c) From point 30, draw a center line at $82\frac{1}{2}$ deg to line 10-11. From point 30, measure upward on the center line $1\frac{1}{2}$ in. and $\frac{1}{4}$ in., and mark the points 34 and 35. Through the points draw lines perpendicular to and extending on both sides of the center line. Measure $\frac{1}{2}$ in. to the right and left of both points, and mark the points 17, 18, 25 and 26. Draw the lines 25-17, 17-21, 26-18 and 18-22.

d) From point 31, draw a center line at 60 deg to line 10-11. From line 10-11, measure vertically $1\frac{1}{4}$ in. and establish point 36 on the center line.

From point 36, measure upward on the center line $\frac{1}{4}$ in., and mark the point 37. Through points 36 and 37,

draw lines perpendicular to and extending on both sides of the center line. Measure $\frac{1}{2}$ in. to the right and left of points 36 and 37, and mark the points 19, 20, 27 and 28. Draw lines 27-19, 19-22, 28-20 and 20-11. From lines 23-24, 25-26 and 27-28, measure up $\frac{1}{2}$ in. and draw the lines X-X perpendicular to the related center lines.

e) With points 33, 35 and 37 as centers, and radius $\frac{1}{2}$ in., draw half circles above lines 23-24, 25-26 and 27-28. Divide the half circles into eight equal spaces and through these points draw lines perpendicular to and intersecting lines 15-16, 17-18 and 19-20. Mark the intersection points on the half circle 38, 39, 40, 41, 40, 39 and 38. The perpendicular lines should also intersect lines XX.

f) Mark the fall distance from point 23 to line XX with the letter A; from points 38 to line XX use letters B; from points 39 to line XX use letters C; from points 40 to line XX use letters D; and from point 24 to line XX use the letter A. This process is used to locate equal working points in the other two branches (lines 17-18 and 19-20). Numerical designation of these points is not necessary to complete the work lines to be located.

g) From point 10, draw lines to the intersecting points of the perpendicular lines drawn through points 38, 39, 40 and 41 and line 15-16. Mark the lines E, F, G, H and J as shown. From point 21, draw lines to the intersection points of the perpendicular lines and line 15-16. Mark the lines K, L, M, N and Q as shown.

h) From crotch points 21 and 22, draw lines to the intersection points of the perpendicular lines drawn through the equally spaced points and line 17-18. Mark the lines drawn from point 21 with the letters P, O, R, S and T. Mark the lines drawn from point 22 with the letters U, V, W, X and Y.

i) From crotch point 22, draw lines to the intersection points of the perpendicular lines drawn through the equally spaced points and line 19-20. Mark the lines Z, 1, 2, 3 and 4. From point 11, draw lines to the intersection points of the perpendicular lines on the diameter line 19-20. Mark the lines 5, 6, 7, 8 and 9.

To Lay Out the Half Pattern, Fig. 4 —

a) Draw the 3 in. horizontal line 10' 11'. From point 10', measure to the right 1 in. and draw a line perpendicular to the line 10'-11'. Measure up $\frac{7}{8}$ in. and mark the point 21'. From point 11', measure to the left $\frac{7}{8}$ in. and draw a line perpendicular to line 10'-11'. Measure up $\frac{7}{8}$ in. and mark the point 22'.

b) From Fig. 2, set a compass at line length J, and with point 10' (Fig. 4) as center, draw an arc above and to the right of point 10'. Set a compass at line length K (Fig. 2) and with point 21' (Fig. 4) as center, cut the arc J and mark the point 1'.

c) Draw a right angle. Transfer line H from Fig. 2 to the vertical leg of a right angle, and fall distance D to the horizontal leg. The hypotenuse line DH is the developed line. With point 10' (Fig. 4) as center and radius DH, draw an arc to the left of point 1'. Set a

compass equal to the space between points 40 and 41 and with point 1' (Fig. 4) as center, cut the arc DH and mark the point 2'.

d) On a right angle, transfer line G from Fig. 2 to the vertical leg, and the distance from line XX to point 39 (marked C) to the horizontal leg. The hypotenuse CG is the developed line. With point 10' (Fig. 4) as center, and radius CG, draw an arc to the left of point 2'. With distance 40-41 as radius, and point 2' (Fig. 4) as center, cut the arc CG, and mark the point 3'.

e) Transfer line F from Fig. 2 to the vertical leg of a right angle, and the fall distance from line XX to point 38 (marked B) to the horizontal leg. The hypotenuse BF is the developed line. With point 10' (Fig. 4) as center, and radius BF, draw an arc to the left of point 3'. With distance 40-41 (Fig. 2) as radius, and point 3' (Fig. 4) as center, cut the arc BF and mark the point 4'.

f) The line E and the fall distance A are transferred from Fig. 2 to the vertical and horizontal legs of a right angle. The hypotenuse line AE is the developed line. With point 10' (Fig. 4) as center, and radius AE, draw an arc to the left of point 4'. With space 40-41 as radius and point 3' as center, cut the arc EA, and mark point 5'.

g) Set a compass at line length 15-10 marked E (Fig. 2) and with point 5' (Fig. 4) as center, draw an arc to the left of point 10'. With one half the given width which is $\frac{1}{2}$ in. (Fig. 3) as radius, and point 10' (Fig. 4) as center, cut the arc E and mark the point 42.

h) Working from point 21, transfer line L from Fig. 2 to the vertical leg of a right angle, and fall distance D to the horizontal leg. The hypotenuse LD is the developed line. With point 21' (Fig. 4) as center and radius LD, draw an arc to the right of point 1'. With space 40-41 (Fig. 2) as radius and point 1' (Fig. 4) as center, cut the arc LD and mark the point 6'.

i) Transfer line M from Fig. 2 to the vertical leg of a right triangle. The fall distance C is transferred to the horizontal leg. The hypotenuse CM is the developed line. With point 21' (Fig. 4) as center and radius CM, draw an arc to the right of point 6'. With space 40-41 (Fig. 2) as radius and point 6' (Fig. 4) as center, cut arc CM and mark the point 7'.

j) Working from point 21 (Fig. 2) set a compass at line length T, and with point 21' (Fig. 4) as center, draw an arc to the right of point 21'. With line length U (Fig. 2) as radius, and point 22' (Fig. 4) as center, cut the arc T, and mark the point 1'.

k) Transfer line D from Fig. 2 to the horizontal leg of a right angle and line V to the vertical leg. The hypotenuse line VD is the developed line. With point 22' (Fig. 4) as center, and radius VD, draw an arc to the right of point 1'. With equally spaced length 40-41 as radius and point 1' (Fig. 4) as center, cut the arc U and mark the point 6'.

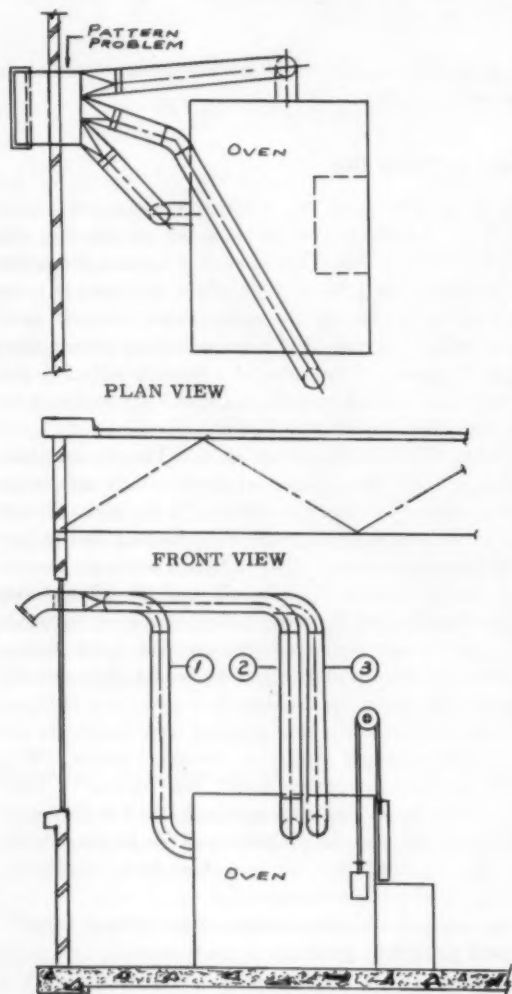
l) The line W and fall distance C are transferred from Fig. 2 to the vertical and horizontal lines of a right angle. The hypotenuse line CW is the developed line. With point 22' (Fig. 4) as center and radius CW, draw an arc to the right of point 6'. With equally spaced dis-

Here's Pattern Layout for a

Three Way Offset Rectangular to Round Fitting

. . . applied here in an industrial exhaust system as a rectangular connection header joining three round ducts at the point of exhaust

THE PROBLEM this month was taken from an industrial oven exhaust system. The oven was positioned close to the building wall, as shown on Fig. 1. The practical method of exhaust was to remove a section of window glass, install a vent to the outside and install flashing.



1 **PATTERN PROBLEM** is applied as a common connection header for three round exhaust ducts from industrial oven

Note that the fitting is symmetrical about the center line on the end view, and that all three ducts are equal in diameter. From this analysis, we conclude that by transferring the $\frac{1}{2}$ in. half width from the end view (Fig. 2B) to its related position on the front view as shown by the three sets of lines marked XX (Fig. 2A) the fall distances for each corresponding line on the front view will be accurately produced. This method will eliminate the need for the end view drawing.

Given the front and end views of a three way offset rectangular to round fitting, the following is a step-by-step analysis of the pattern problem solution. (Note: The end view (Fig. 3) is projected vertically from Fig. 2. This view is drawn for clarification only.)

Simplified Method Drawing, Fig. 2 —

a) Draw the 3 in. horizontal line 10-11. From point 10, measure to the right 1 in. and $1\frac{1}{8}$ in., and at these points draw lines perpendicular to line 10-11. From line 10-11, measure $\frac{7}{8}$ in. up both lines and mark the points 21 and 22.

b) From point 10, measure to the right $\frac{3}{8}$ in., $1\frac{1}{8}$ in. and $\frac{3}{4}$ in., and mark the points 29, 30 and 31. From point 29 draw the vertical center line marked C L (perpendicular to line 10-11). Measure upward on the center line the given $1\frac{1}{2}$ in. and $\frac{1}{4}$ in. lengths, and mark the points 32 and 33. Through the points draw lines perpendicular to and extending on both sides of the center line. Measure $\frac{1}{2}$ in. on both sides of points 32 and 33 and mark the points 15, 16, 23 and 24. Draw the lines 23-15, 15-10, 24-16 and 16-21.

c) From point 30, draw a center line at $82\frac{1}{2}$ deg to line 10-11. From point 30, measure upward on the center line $1\frac{1}{2}$ in. and $\frac{1}{4}$ in., and mark the points 34 and 35. Through the points draw lines perpendicular to and extending on both sides of the center line. Measure $\frac{1}{2}$ in. to the right and left of both points, and mark the points 17, 18, 25 and 26. Draw the lines 25-17, 17-21, 26-18 and 18-22.

d) From point 31, draw a center line at 60 deg to line 10-11. From line 10-11, measure vertically $1\frac{1}{4}$ in. and establish point 36 on the center line.

From point 36, measure upward on the center line $\frac{1}{4}$ in., and mark the point 37. Through points 36 and 37,

draw lines perpendicular to and extending on both sides of the center line. Measure $\frac{1}{2}$ in. to the right and left of points 36 and 37, and mark the points 19, 20, 27 and 28. Draw lines 27-19, 19-22, 28-20 and 20-11. From lines 23-24, 25-26 and 27-28, measure up $\frac{1}{2}$ in. and draw the lines X-X perpendicular to the related center lines.

e) With points 33, 35 and 37 as centers, and radius $\frac{1}{2}$ in., draw half circles above lines 23-24, 25-26 and 27-28. Divide the half circles into eight equal spaces and through these points draw lines perpendicular to and intersecting lines 15-16, 17-18 and 19-20. Mark the intersection points on the half circle 38, 39, 40, 41, 40, 39 and 38. The perpendicular lines should also intersect lines XX.

f) Mark the fall distance from point 23 to line XX with the letter A; from points 38 to line XX use letters B; from points 39 to line XX use letters C; from points 40 to line XX use letters D; and from point 24 to line XX use the letter A. This process is used to locate equal working points in the other two branches (lines 17-18 and 19-20). Numerical designation of these points is not necessary to complete the work lines to be located.

g) From point 10, draw lines to the intersecting points of the perpendicular lines drawn through points 38, 39, 40 and 41 and line 15-16. Mark the lines E, F, G, H and J as shown. From point 21, draw lines to the intersection points of the perpendicular lines and line 15-16. Mark the lines K, L, M, N and Q as shown.

h) From crotch points 21 and 22, draw lines to the intersection points of the perpendicular lines drawn through the equally spaced points and line 17-18. Mark the lines drawn from point 21 with the letters P, O, R, S and T. Mark the lines drawn from point 22 with the letters U, V, W, X and Y.

i) From crotch point 22, draw lines to the intersection points of the perpendicular lines drawn through the equally spaced points and line 19-20. Mark the lines Z, 1, 2, 3 and 4. From point 11, draw lines to the intersection points of the perpendicular lines on the diameter line 19-20. Mark the lines 5, 6, 7, 8 and 9.

To Lay Out the Half Pattern, Fig. 4 —

a) Draw the 3 in. horizontal line 10' 11'. From point 10', measure to the right 1 in. and draw a line perpendicular to the line 10'-11'. Measure up $\frac{7}{8}$ in. and mark the point 21'. From point 11', measure to the left $\frac{7}{8}$ in. and draw a line perpendicular to line 10'-11'. Measure up $\frac{7}{8}$ in. and mark the point 22'.

b) From Fig. 2, set a compass at line length J, and with point 10' (Fig. 4) as center, draw an arc above and to the right of point 10'. Set a compass at line length K (Fig. 2) and with point 21' (Fig. 4) as center, cut the arc J and mark the point 1'.

c) Draw a right angle. Transfer line H from Fig. 2 to the vertical leg of a right angle, and fall distance D to the horizontal leg. The hypotenuse line DH is the developed line. With point 10' (Fig. 4) as center and radius DH, draw an arc to the left of point 1'. Set a

compass equal to the space between points 40 and 41 and with point 1' (Fig. 4) as center, cut the arc DH and mark the point 2'.

d) On a right angle, transfer line G from Fig. 2 to the vertical leg, and the distance from line XX to point 39 (marked C) to the horizontal leg. The hypotenuse CG is the developed line. With point 10' (Fig. 4) as center, and radius CG, draw an arc to the left of point 2'. With distance 40-41 as radius, and point 2' (Fig. 4) as center, cut the arc CG, and mark the point 3'.

e) Transfer line F from Fig. 2 to the vertical leg of a right angle, and the fall distance from line XX to point 38 (marked B) to the horizontal leg. The hypotenuse BF is the developed line. With point 10' (Fig. 4) as center, and radius BF, draw an arc to the left of point 3'. With distance 40-41 (Fig. 2) as radius, and point 3' (Fig. 4) as center, cut the arc BF and mark the point 4'.

f) The line E and the fall distance A are transferred from Fig. 2 to the vertical and horizontal legs of a right angle. The hypotenuse line AE is the developed line. With point 10' (Fig. 4) as center, and radius AE, draw an arc to the left of point 4'. With space 40-41 as radius and point 3' as center, cut the arc EA, and mark point 5'.

g) Set a compass at line length 15-10 marked E (Fig. 2) and with point 5' (Fig. 4) as center, draw an arc to the left of point 10'. With one half the given width which is $\frac{1}{2}$ in. (Fig. 3) as radius, and point 10' (Fig. 4) as center, cut the arc E and mark the point 42.

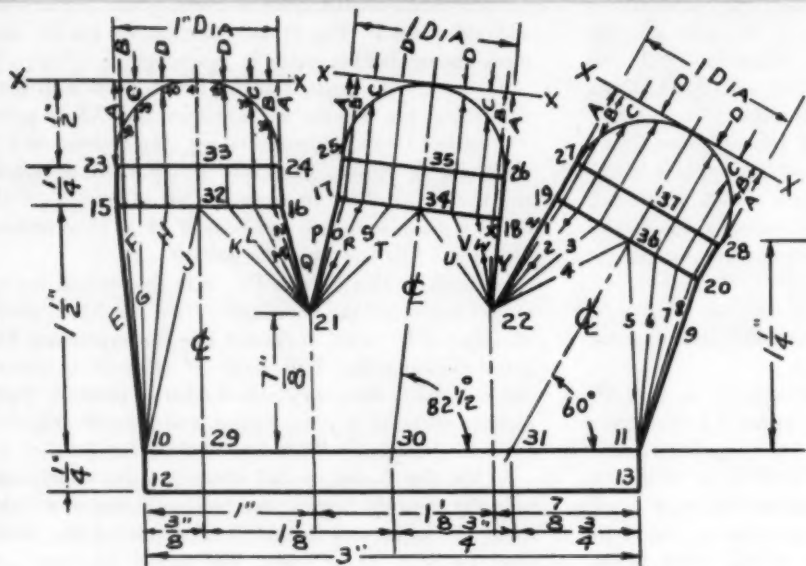
h) Working from point 21, transfer line L from Fig. 2 to the vertical leg of a right angle, and fall distance D to the horizontal leg. The hypotenuse LD is the developed line. With point 21' (Fig. 4) as center and radius LD, draw an arc to the right of point 1'. With space 40-41 (Fig. 2) as radius and point 1' (Fig. 4) as center, cut the arc LD and mark the point 6'.

i) Transfer line M from Fig. 2 to the vertical leg of a right triangle. The fall distance C is transferred to the horizontal leg. The hypotenuse CM is the developed line. With point 21' (Fig. 4) as center and radius CM, draw an arc to the right of point 6'. With space 40-41 (Fig. 2) as radius and point 6' (Fig. 4) as center, cut arc CM and mark the point 7'.

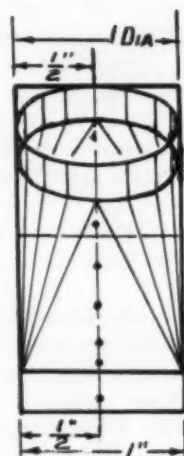
j) Working from point 21 (Fig. 2) set a compass at line length T, and with point 21' (Fig. 4) as center, draw an arc to the right of point 21'. With line length U (Fig. 2) as radius, and point 22' (Fig. 4) as center, cut the arc T, and mark the point 1'.

k) Transfer line D from Fig. 2 to the horizontal leg of a right angle and line V to the vertical leg. The hypotenuse line VD is the developed line. With point 22' (Fig. 4) as center, and radius VD, draw an arc to the right of point 1'. With equally spaced length 40-41 as radius and point 1' (Fig. 4) as center, cut the arc U and mark the point 6'.

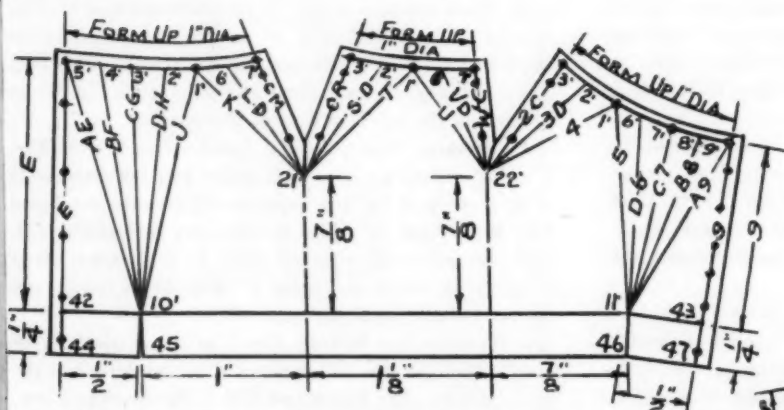
l) The line W and fall distance C are transferred from Fig. 2 to the vertical and horizontal lines of a right angle. The hypotenuse line CW is the developed line. With point 22' (Fig. 4) as center and radius CW, draw an arc to the right of point 6'. With equally spaced dis-



2 FRONT VIEW (simplified method)



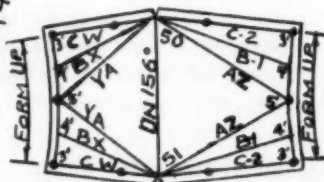
3 END view



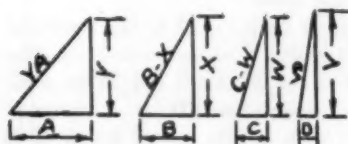
4 HALF PATTERN (one right and one left required)



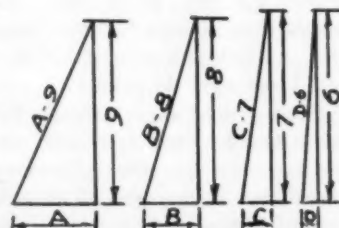
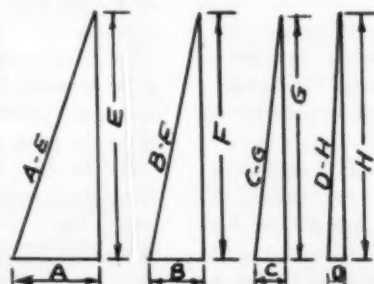
5 LEFT crotch pattern



6 RIGHT crotch pattern



TRUE LENGTH LINES



tance 40-41 (Fig. 2) as radius and point 6' as center, cut the arc CW and mark the point 7'.

m) Transfer line S from Fig. 2 to the vertical leg of a right angle, and fall distance D to the horizontal leg. The hypotenuse SD is the developed line. With point 21' (Fig. 4) as center and radius SD, draw an arc to the left of point 1'. With equal space 40-41 (Fig. 2) as radius and point 1' (Fig. 4) as center, cut the arc SD and mark the point 2'.

n) Line R and fall distance C are transferred from Fig. 2 to the vertical and horizontal legs of a right angle. The hypotenuse line CR is the developed line. With point 21' (Fig. 4) as center and radius CR, draw an arc to the left of point 2'. With equal space length 40-41 (Fig. 2) as radius and point 2' (Fig. 4) as center, cut the arc CR and mark the point 3'.

o) With line 4 (Fig. 2) as radius and point 22' (Fig. 4) as center, draw an arc to the right of point 22'. With line 5 (Fig. 2) as radius and point 11' (Fig. 4) as center, cut the arc 4 and mark the point 1'.

p) Transfer lines 6, 7, 8, 9 to the vertical legs of the right angles and fall distances D, C, B, A to the respective horizontal legs. The hypotenuse lines D6, C7, B8 and A9 are the developed lines. With point 11' (Fig. 4) as center draw arcs D6, C7, B8 and A9 above and to the right of point 11' in the order given. With the equal space distance 40-41 (Fig. 2) as radius, and working right from point 1' (Fig. 4) cut the arcs D6, C7, B8 and A9 and mark the points 6', 7', 8' and 9' respectively.

q) Set a compass at line length 20-11 marked 9 (Fig. 2) and with point 9' (Fig. 4) as center, draw an arc to the right of point 11' (Fig. 4). With given length $\frac{1}{2}$ in. (Fig. 3) as radius and point 11' (Fig. 4) as center, cut the arc 9 and mark the point 43.

r) Transfer lines 3 and 2 from Fig. 2 to the vertical legs of right angles, and fall distances D and C to the respective horizontal legs. The hypotenuse lines 3D and 2C are the developed lines. With point 22' (Fig. 4) as center, and radii 3D and 2C, draw arcs to the left of point 1'. With equal space length 40-41 (Fig. 2) as radius and point 1' (Fig. 4) as center, cut the arcs 3D and 2C, and mark the points 2' and 3' respectively.

To Lay Out Left Crotch Pattern, Fig. 5 —

a) Draw a line equal in length to the hidden edge crotch line (Fig. 3) which is 1 in., and mark the line 48-49.

b) Draw a right angle. Transfer line Q from Fig. 2 to the vertical leg and fall distance A to the horizontal leg. The hypotenuse AQ is the developed line. With point 48 as center and radius AQ, draw an arc above and to the right of this point. With point 49 as center and radius AQ, cut the arc drawn from point 48 and mark the point 5'.

c) Transfer lines N and M (Fig. 2) to the vertical legs of right angles, and the fall distances B and C (Fig. 2) to the respective horizontal legs. The hypotenuse lines BN and CM are the developed lines. With point 48 (Fig.

5) as center and radii BN and CM, draw arcs to the left of point 5'. With point 49 as center and the same radii, draw arcs to the right of point 5'. With equal space 40-41 (Fig. 2) as radius and point 5' as center, cut the arcs BN and CM on both sides and mark both sets of points 4' and 3'.

d) Transfer line P from Fig. 2 to the vertical leg of a right angle, and fall distance A to the horizontal leg. The hypotenuse line AP is the developed line. With point 49 (Fig. 5) as center and radius AP, draw an arc below and to the left of point 49. With point 48 as center and radius AP, cut the first arc AP and mark the point 5'.

e) Transfer lines O and R from Fig. 2 to the vertical legs of right angles, and the fall distances B and C to the respective horizontal legs. The hypotenuse lines BO and CR are the developed lines. With point 48 as center and radii BO and CR, draw arcs to the left of point 5'. With point 49 as center and the same radii, draw arcs to the right of point 5. With equal space 40-41 (Fig. 2) as radius and point 5 (Fig. 5) as center, cut both the arcs BO and CR, and mark both sets of points 4' and 3' respectively.

To Lay Out Right Crotch Pattern, Fig. 6 —

a) Draw a line equal in length to the hidden edge crotch line (Fig. 3) which is 1 in., and mark the line 50-51.

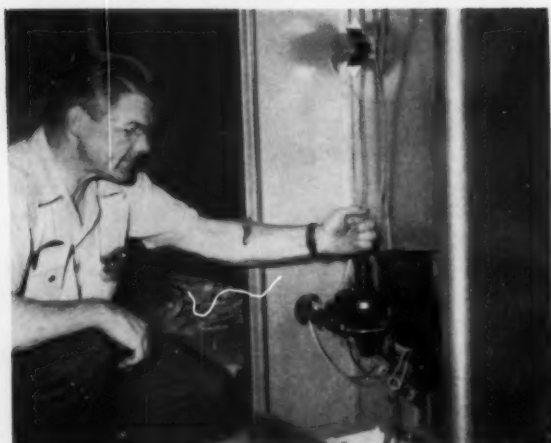
b) Draw a right angle. Working from point 22 (Fig. 2) transfer line Z from Fig. 2 to the vertical leg of a right angle, and fall distance A to the horizontal leg. The hypotenuse line AZ is the developed line. With point 50 as center, and radius AZ, draw an arc to the right and below point 50. With point 51 as center and the same radius, cut the first arc AZ and mark the point 5'.

c) Transfer lines 1 and 2 to the vertical legs of right angles, and fall distances B and C to the respective horizontal legs. The hypotenuse lines B1 and C2 are the developed lines. With point 50 (Fig. 6) as center and radii B1 and C2, draw arcs above point 5'. From point 51, draw arcs below point 5'. With equal space 40-41 (Fig. 2) as radius and point 5' (Fig. 6) as center, cut both arcs B1 and C2, and mark both sets of points 4' and 3'.

d) On a right angle, transfer line Y (Fig. 2) to the vertical leg and fall distance A (Fig. 2) to the horizontal leg. The hypotenuse line YA is the developed line. With point 50 (Fig. 6) as center and radius YA, draw an arc to the left and below point 50. With point 51 as center and the same radius, cut the arc drawn from point 50 and mark the point 5'.

e) Transfer lines X and W from Fig. 2 to the vertical legs of right angles and fall distances B and C to the respective horizontal legs. The hypotenuse lines BX and CW are the developed lines. With point 50 as center, and radii BX and CW, draw arcs above point 5'. With point 51 as center and the same radii, draw arcs below point 5'. With point 5' as center, and equal space 40-41 (Fig. 2) as radius, cut both arcs BX and CW and mark both sets of points 4' and 3'.

Dealer Proves . . .



DUAL OUTPUT gas burner being adjusted by dealer F. Van Pils was sold to modernization prospect by explaining its advantages



AS PART of quality installation, dealer also sold this two-speed blower which delivers the air volume required to match burner output

Quality Can Be Sold

A good sales technique can convince the prospect that a quality installation will provide the most comfort and keep price from being the major consideration

ALTHOUGH COMPETITION for modernization jobs is not ordinarily as severe as for new house installations, a heating-cooling dealer still needs to use extra effort in order to sell quality in the modernization market. Without this extra effort price is liable to become the major consideration, and the customer will end up with an installation that is not entirely satisfactory.

F. Van Pils, heating-cooling dealer of Lockport, N.Y., has developed a sales technique that is paying off in the modernization market. He always specifies the type of equipment and installation that will give the customer the most comfort. He sticks to these recommendations through thick and thin and relies on hard selling to convince his prospects.

Added Cost Must Be Explained

For example, when installing ducts in a building where no previous duct work exists, the average cost of a modernization job is almost twice that of a system for

a new house of comparable heat loss. This added cost must be carefully explained, since the prospect may be comparing this price with prices he has heard about for new house installations.

To meet this difficulty, Mr. Pils tells the prospect exactly why a certain number of supply runs is required to deliver the necessary quantity of heat to different areas. Then he points out the problems involved in installing the ducts.

Gives Reasons for Recommendation

After establishing this background for his bid, Mr. Pils describes the equipment he is recommending and points out why this particular equipment is preferred. He describes specific features of the equipment and outlines the advantages to be gained by its use in the customer's house.

As his principal sales appeal, Mr. Pils emphasizes the fact that he is seeking to give the customer "constant

heat and constant air circulation for constant comfort." Then he backs up this statement by explaining how this is all accomplished.

He shows the prospect that the gas-fired furnace he is suggesting has a special control which turns the flame up or down instead of off and on. This constant heat helps stabilize room temperatures. He points out that the automatic control enables the furnace to compensate for changes in outside temperature. To make this clear he reminds the prospect that the house loses more heat during the evening hours when outside temperatures drop.

Mr. Pils explains why he recommends a two speed blower to provide constant air movement and explains the advantages of this continuous flow.

Uses Term "Winter Air Conditioning"

In creating a picture of the system in the prospect's mind, the term "winter air conditioning" is used repeatedly. The difference between just heating and winter air conditioning is explained with emphasis on the filters used in the system.

As another selling feature, Mr. Pils describes the thorough planning that goes into each installation. He explains that the construction of the building is carefully investigated. Wall thickness is measured, beam and truss locations are noted, and a detailed plan is sketched.

Perimeter heating is used wherever possible and special features of the duct system are used as selling points. Careful planning of the duct system can save money and assure satisfactory operation. To reach second floor outlets ducts are run through closets and in room corners. Floor diffusers are used where the air stream flows over outside walls. Inside wall openings are located in the baseboard. The fewer the number of wall cuts, the lower the cost.

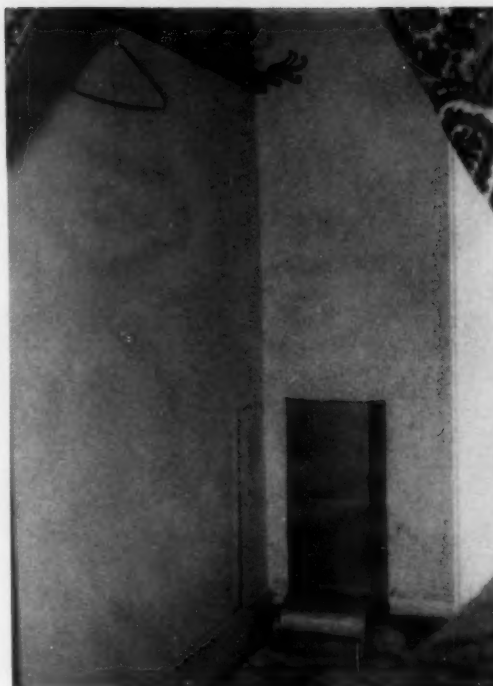
Installation Made in House Without Central Heat

A good example of the type of installation provided by this dealer is one recently made in a 22 year old house which did not previously have a central heating system. This was a two-story house with basement.

On the first floor perimeter diffusers were installed about 8 in. from the wall. However, on the second floor the outside wall construction did not provide enough space for ducts to be located between the studs.

The second floor bathroom was located directly over the dinette with windows in both rooms in vertical alignment. To deliver warm air to a perimeter location in the bathroom, a duct was run along a corner of the dinette to a point above the window. Then it was turned vertically to feed an elbow that extended through the joist space to a diffuser in the bathroom floor.

To get heated air to a second floor corner bedroom, a duct was run from the top of the main trunk in the basement through a first floor closet. This permitted locating a short baseboard diffuser on a partition wall opposite the outside wall containing the most glass area.



DESPITE PROBLEMS, well designed duct system was created in this older house. Photo shows how riser was installed around obstructing joist by using two 90 deg elbows

From this diffuser the warm air fanned outward toward the two outside walls with sufficient velocity to assure reaching both cold walls.

Second Bedroom Duct Presents Problem

Another second floor corner bedroom presented a more difficult problem. The partition walls in this room were not located above any corresponding walls on the first floor. In this case a $21\frac{1}{2} \times 12$ in. duct was brought through the basement ceiling into a closet, turned into a partition wall, and extended to the second floor. This type of installation was necessary because a first floor joist was directly beneath the closet's partition wall and a second floor joist was directly above the point where the duct entered the closet. An opening was made for a floor diffuser at the point where the duct came through the second floor. This was about 8 in. from the nearest wall. The air supply was directed upward at a velocity sufficient to wipe the ceiling and move toward the outside walls.

Difficult jobs such as these are used as examples by Mr. Pils to help sell prospects. They point up the fact that there are no average or standard conditions in modernization. Each job must be specially designed with the proper equipment in order to assure constant comfort.

A Compromise Is A Sacrifice

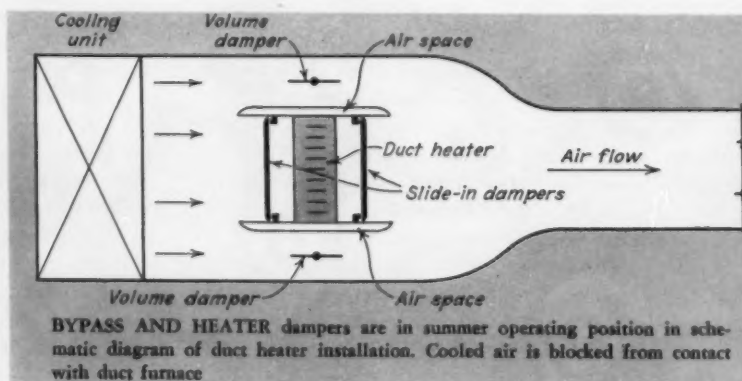


DETERIORATION OF duct heater caused by moisture condensing on inside surface of heat exchanger is inspected by J. R. Tufts

SPACE REQUIREMENTS for combination heating and cooling equipment often make a duct heater a very useful piece of equipment. Too often the engineering requirements for good duct heater installations are compromised to fit requirements of other pieces of equipment in a machinery room. Usually such compromises result in a sacrifice in performance and service to the customer. Installation of duct heaters by Conditioned Air Engineers, Inc., Atlanta, receive special attention to overcome problems that can develop when good installation practices are bypassed.

One of the most frequent problems developing in duct heater installations where cooling equipment is used is a rapid deterioration of the casing and heat exchanger surfaces, according to John R. Tufts, purchasing agent for Conditioned Air Engineers, Inc. Mr. Tufts points out a recent replacement job in a popular restaurant as an example of what can happen within a few years when good practices are compromised. Installation of a bypass duct to be used when the summer air conditioning system is in operation has solved the

... when it comes to engineering requirements for duct heater installations. That's why this dealer recommends a damper and bypass arrangement in year 'round systems to avoid deterioration caused by the cooled air passing over the heat exchanger surface



deterioration problem which was caused by cooled air passing over the heat exchanger surface.

Supply System Redesigned

The duct heater illustrated was installed by another contracting firm three years ago. When the duct heater and its connecting duct work were removed, a half bushel of scale and rust was found to have settled in a corner of one of the duct elbows. About 10 times the amount of scale and rust found in the elbow must have been discharged into the dining room and kitchen areas.

Replacement of the duct heater called for a complete alteration of the main supply duct. Originally this duct had run 6 ft straight out from the cooling unit, then dipped downward to pass under water and sewer piping, turned and ran horizontally again for 8 ft before it turned upward and to the right to the point where the first takeoff began. The new duct heater was set into the same location used for the original heater but the S type elbow between the heater and cooling cabinet was redesigned to split into a Y branch between the cooling unit and the duct heater. Then the upper part of the branch was connected to the duct heater and the lower part became a bypass for the duct heater and connected to a similar branch fitting beyond the duct heater.

Heat Exchanger Is Protected

Dampers were inserted on each side of the duct heater and in the by-

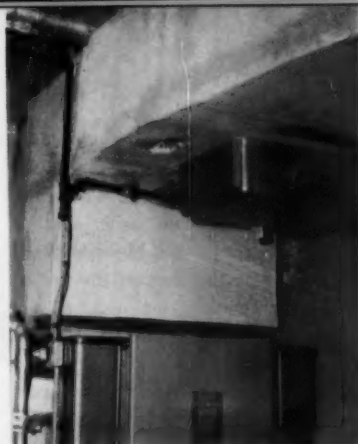
pass duct. The damper positions are changed for the heating and cooling seasons. The bypass duct and the dampers on each side of the duct heater prevent chilled air from passing over the heat exchanger when the cooling system is in use, and deterioration is minimized.

Moisture condensation inside the heat exchanger is the cause of rapid deterioration of the heat exchanger surfaces. Air and moisture reach the inside of the heat exchanger through the stack hood or barometric damper and chimney. Moisture condenses when it contacts the cool heat exchanger surface and mixes with soot and other combustion products to produce strong acids which rust the metal surfaces inside the heat exchanger, casing and other components.

Three Air Paths Formed

The duct and damper assembly described here is an adaptation of the type of bypass system usually specified when Conditioned Air Engineers, Inc. is called in to plan an original duct heater installation. The recommended bypass system is fabricated as part of the discharge plenum on the cooling coil and blower cabinet. The bypass duct is formed by splitting the discharge duct into three air paths. The center path is the largest and handles the total air volume required for the heater. This center duct supplies the heater during the winter. Each outside duct handles half the air volume needed for cooling. (See drawing.)

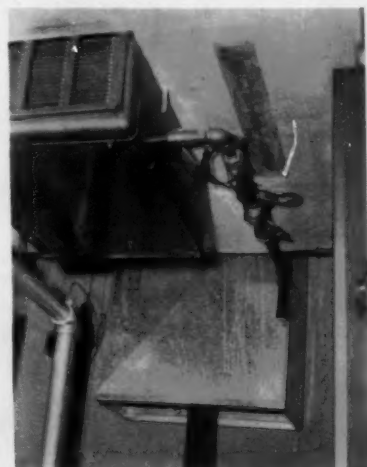
Four dampers are used, one in



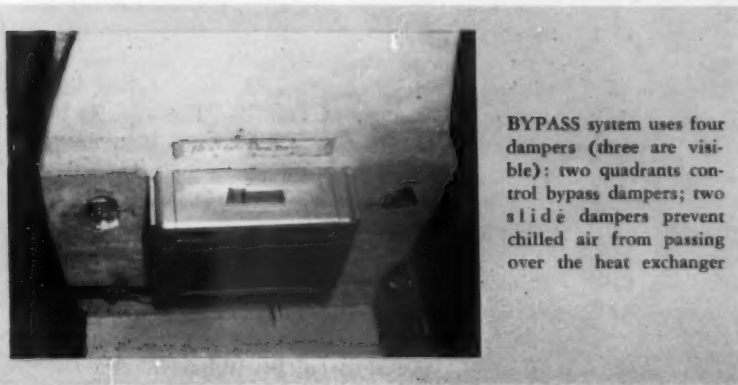
LOCATING DUCT HEATER in an overhead duct system provides plenty of headroom in janitor's closet in branch bank installation



NEW BRANCH FITTING makes it possible for bypass duct to be installed during replacement of a worn out duct heater



COMBUSTION AIR is provided for all commercial installations. Note that outside air duct had to be fitted around drain pipe



BYPASS system uses four dampers (three are visible): two quadrants control bypass dampers; two slide dampers prevent chilled air from passing over the heat exchanger

each of the outside ducts, one in front of and one behind the duct heater. Standard volume dampers are used in the outside ducts. The slide-in dampers used on each side of the duct furnace are inserted from the bottom of the duct at the beginning of the cooling season when the bypass duct dampers are opened. The duct heater dampers are removed and the bypass dampers are closed when heating is called for.

Insulation Prevents Leakage

To keep the two slide-in dampers from leaking cooled air into the duct heater during the cooling season, rubber gaskets are sealed to the frames. As each damper is pushed into place, it forms an airtight joint against the gasket material.

The entire supply duct system is covered with 1 in. of insulation and insulation plugs are used to prevent condensation at the quadrants for the bypass dampers. These plugs are also

used to cover the exposed bottom portions of the slide dampers.

The two bypass ducts and one heater duct are separated by a 2 in. air space. This precaution prevents the chill bypass ducts from touching the duct heater and setting up a situation similar to that encountered before the bypass system was designed as a corrective measure.

Combustion Air Supplied

When Conditioned Air Engineers, Inc. installs commercial size heating equipment, a duct is always provided to supply outside air for combustion purposes. Sometimes this duct must fit into odd shaped places to avoid pipes, equipment or building structural members. The one illustrated had to be fitted around a 5 in. sewer pipe which ran from the floor above. An opening had to be cut in the top of the elbow where the combustion air intake turned toward the outer wall.

When installing duct heaters, the firm allows for a minimum of 6 in. clearance between the ceiling and the top of the heater. For servicing, at least 18 in. is provided between the rear of the heater and the blower package. The new gas piping from the meter to the duct heater is supported by straps at 3 ft intervals. When gas piping has a vertical drop, a trap is provided at the end of the drop.

Standards Avoid Compromise

Flue piping is the same size as the outlet at the heater flue collector. Dampers are never installed in the flue pipe. Other appliances are not vented to the same flue. All flue pipes are as short as possible with a slant upward toward the chimney.

These rigid installation standards help the company avoid compromises and the resulting sacrifices in performance of whatever equipment is being installed.

One Way to Reduce Oil Burner Noise Levels

It's NOT ENOUGH that oil burners operate efficiently these days; users demand that they work quietly as well as economically. Noise level, accordingly, has become an important point in selling oil burning equipment.

Thus, the installer must consider the acoustical problem in every case, particularly when using new equipment.

An oil burner is a mechanical device made up of moving parts which will normally produce various types of mechanical and combustion noises. These noises, when within practical commercial standards, can be expected to be acceptable to the consumer — even though the only way to silence a high pressure oil burner completely is to turn it off.

Acoustical Problems Vary

Each installation presents a different acoustical problem. An installation that produces too much noise can destroy the reputation of the dealer even though he may have used the most expensive equipment available and adjusted it expertly.

It is acknowledged that a positive displacement pump (used on all high pressure gun-type oil burners) will produce hydraulic pulses at a frequency equivalent to a certain number of discharges of the pump into the pressure regulating chamber.

For example, one type of fuel unit with 13 gear pock-

ets operating at a motor speed of 1725 rpm produces 22,425 pulses per minute.

Modern Components Actually Amplify Noise

Generally speaking, with the older type heavy cast iron burner housings, this frequency was absorbed by the weight of the cast iron and little sound was transmitted. However, the trend has been to use lighter materials such as pressed steel and aluminum die-cast housings in oil burner design.

Thus, on some burners these pulses are actually amplified and can be heard too clearly by the occupants of the dwelling.

Introduction of an air bubble into the valve chamber to absorb the hydraulic pulsations has provided the answer in many cases. This technique has been accomplished by using hydraulic cushions in the fuel unit.

Application of the hydraulic cushion, a sealed bubble of air encased in a nylon cell, has successfully dampened the hydraulic noise in many cases. Inclusion of one of these hydraulic cushions in the bypass chamber has also proved an effective aid for two line systems.

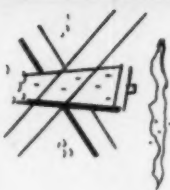
The introduction of hydraulic cushions is not a cure-all for every acoustical problem encountered on oil burning installations. But these units have been of substantial help in reducing the noise level of a great number of jobs. — LOUIS E. EHRICH, JR., Webster Electric Co.

EXHIBIT HOURS

Monday, February 25, 2 p.m. to 10 p.m.
 Tuesday, February 26, Noon to 10 p.m.
 Wednesday, February 27, Noon to 10 p.m.
 Thursday, February 28, Noon to 10 p.m.
 Friday, March 1, Noon to 6 p.m.



HOW TO GET THERE FROM DOWNTOWN



BY AUTO—from loop go south on Michigan Avenue, turn west on 43rd St.
BY SUBWAY AND ELEVATED—trains leave downtown at Washington and State Sts. or State and Monroe Sts. every seven minutes. Transfer at Indiana Avenue Station (4100 South). Trains leave there every fifteen minutes for stockyards. This schedule is in effect from 7 a.m. until midnight.
SPECIAL BUSES—leave from downtown (loop) hotels periodically during show hours; return from show to Loop as loaded.

HOSPITALITY ROOMS

COMPANY	HOTEL	ROOM	TIME

PHONE NUMBERS

NAME	NUMBER



A HANDY SHOW GUIDE

... makes it easy to plan your tour of the show—in advance—so you don't miss those exhibits you particularly want to see. Tear out the card along the vertical perforation, fold it down to pocket size on the horizontal scored marks. See the instructions at right, below, on how you'll want to use this "show guide" at the International Heating & Air Conditioning Exposition.

AMERICAN ARTISAN

FEBRUARY 1957

RESIDENTIAL AIR CONDITIONING
 WARM AIR HEATING
 SHEET METAL CONTRACTING



SHOW GUIDE—containing a diagram of Exposition area with space to list (1) the exhibits you want to see, (2) hospitality rooms, (3) phone numbers—as well as other helpful show information.



INTERNATIONAL HEATING & AIR-CONDITIONING EXPOSITION
 INTERNATIONAL ADMINISTRATIVE CENTER
 FEB. 25-MAR. 1, 1957

HERE'S HOW TO USE THIS HANDY SHOW GUIDE

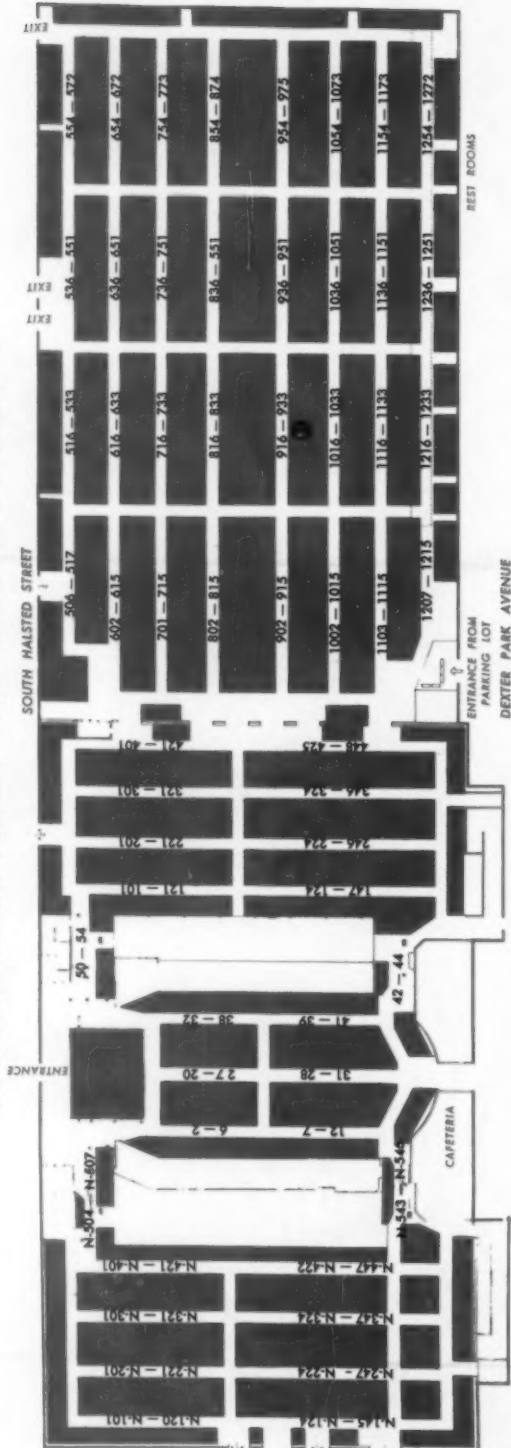
As you study the list of exhibitors and their products, both in the advertisements in this issue and in the following show section, jot down the company names and their booth numbers of those exhibits you particularly want to see—in the space provided below the diagram on the backside of this card. You may want to do this before you leave for Chicago so that, before starting out on your tour of the show, you have located the exhibit spaces on the diagram and have marked them. With this done, it will be easy for you to plan your route so you are sure to see those exhibits important to you.

TEAR
 OUT
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TEAR OUT THIS CARD. FOLD IT. AND CARRY IT WITH YOU TO THE SHOW.

For show information, or just a place to sit and relax, visit the AMERICAN ARTISAN booth—Number 924

13th INTERNATIONAL HEATING & AIR-CONDITIONING EXPOSITION



EXHIBITOR

BOOTH

EXHIBITOR

BOOTH

... makes it easy to plan your tour of the show—in advance—so you don't miss those exhibits you particularly want to see. Tear out the card along the vertical perforation, fold it down to pocket size on the horizontal scored marks. See the instructions at right, below, on how you'll want to use this "show guide" at the International Heating & Air Conditioning Exposition.

A HANDY SHOW GUIDE

TEAR
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American Artisan

SHOW SECTION

spotlighting the . . .

**13th International Heating &
Air-Conditioning Exposition**

**63rd Annual Meeting of the
American Society of Heating and
Air-Conditioning Engineers**

**CHICAGO
February 25 — March 1**



**Complete information—
Highlights of the Week, Pro-
gram of the Meeting, Names
and Addresses of Exhibitors,
Products and Equipment on
Exhibit**

Meeting, Show To Be "Biggest Yet"

ASHAE Annual Meeting and International Heating and Air-Conditioning Exposition Both Expected to Set Attendance Records

BOTH THE 63rd annual meeting of the American Society of Heating and Air-Conditioning Engineers, and the 13th International Heating and Air-Conditioning Exposition, to be held in Chicago this month, are expected to set new high records of attendance, according to ASHAE President John W. James.

Headquarters for the meeting — with technical sessions and other events February 25-28 — is the Conrad Hilton hotel, and the concurrent exposition — open February 25-March 1 — with some 500 displays will be at the International Amphitheatre. (Quite suitably, the Hilton announced the signing a few weeks ago of a \$9 million contract to air condition its 3000 rooms. The amphitheatre was extensively air conditioned for the 1952 national political conventions, and has added air conditioned space since then.)

The presentation of 13 papers and the discussions at two symposiums will provide valuable technical information for those attending the ASHAE meeting. Registration, sessions and most committee meetings will take place in the Conrad Hilton. Simultaneously with the opening of the meeting, the exposition will take place, under the auspices of the ASHAE and the management of the International Exposition Co., of which E. K. Stevens is president.

In advance of the technical sessions, many of the Society committees will hold meetings relative to their own particular activities, beginning on Saturday, February 23.

Various special events (see the program) for Society members, their families and guests have been planned by the ASHAE Illinois

Chapter committee on arrangements, of which Peter J. Marschall is chairman.

To Install New Officers

The report of the Inspectors of Election of Society officers, Council members, and the Committee on Research will be presented at the second session on Tuesday morning, February 26. Nominees are: President, Peter B. Gordon, New York City; First Vice President, Elmer R. Queer, University Park, Pa.; Second Vice President, Arthur J. Hess, Los Angeles; and Treasurer, Charles H. Pesterfield, East Lansing, Mich. For three year terms on the Council: Richard S. Dill,* Washington, D.C.; William G. Hole, Montreal; Peter J. Marschall, Chicago; and Wesley O. Stewart, Los Angeles. Candidates for three year terms on the Committee on Research are: Dominic D'Eustachio, Pittsburgh; Elbert S. Howarth, New Kensington, Pa.; Howard R. Limbacher, Kalamazoo; Edwin F. Snyder, Minneapolis; and John I. Trimble, Columbus, Ohio. The candidate nominated to serve out a one year term is Paul H. Yeomans, Philadelphia.

The introduction and installation of the 1957 officers will take place at the annual banquet on Wednesday evening in the grand ballroom of the Conrad Hilton. Also at that time the Past President's Award will be presented to John W. James and the Society's coveted F. Paul Anderson Medal will be given to M. K. Fahnestock, Urbana, Ill., research professor of mechanical engineering and chairman of the Physical Environment Unit of the University of Illi-

*Deceased January 17, 1957.

nois. The banquet speaker is Dr. Preston A. Bradley, pastor of Peoples Church, Chicago, his subject being Facing the Future.

On the opening day of the annual meeting there will be a Welcome luncheon following the conclusion of the morning session. The luncheon speaker is Dr. Richard Heflebower, chairman of the economics department at Northwestern University; his subject is Revolutions in Our Times.

Booth 701, the exhibit of the Society at the exposition, will feature a live demonstration of sound measurement, and will focus attention on the research, publication and membership activities of the Society for the advancement of professional knowledge during the past 63 years.

The exposition hours are 2 to 10 p.m. Monday, 12 to 10 p.m. Tuesday, Wednesday and Thursday, and 12 to 6 p.m. on Friday, the closing day. Bus transportation will be available daily from the Loop hotels to the International Amphitheatre.

Monday Technical Sessions

Each of the six technical sessions of the annual meeting will be called to order at 9:30 a.m. at the Conrad Hilton. The papers and symposiums, in order of presentation, are as follows:

Study of Three Redwood Cooling Tower Packings, by Wesley W. Smith, associate research engineer, Texas Engineering Experiment Station, Texas A. & M. College System, is a report of several hundred tests of three types of redwood cooling tower packings. Purpose of the study was to obtain fundamental information on mass transfer and resistance

USE THE HANDY guide to the Exposition to plan your visit, save your time (see second preceding page) . . . On following pages, see complete program of meeting, listing of exhibits, diagram of the Show layout, helpful advice on attending the meeting, looking at the exhibits.

to air flow in various cooling tower packings, and also to determine why some cooling tower manufacturers preferred certain packing types, as well as to indicate ways for improving packings.

Earth as Heat Source and Sink for Heat Pumps, by D. M. Vestal, Jr., research engineer, and B. J. Fluker, assistant research engineer, both of Texas Engineering Experiment Station, Texas A. & M. College System, presents the results of an extensive investigation of the earth at shallow depths as a heat source and sink for the heat pump. The paper also contains a buried coil design equation derived from this study.

From '36 to '56: Air Conditioning Comes of Age, by Walter A. Grant, vice president, central engineering staff, Carrier Corp., Syracuse, N.Y., is the last paper of the first session and it is a history of 20 years progress in air conditioning, pointing out the many advancements made in equipment and methods.

Two Sessions Tuesday

Revised Winter Outside Design Temperatures, by H. C. S. Thom, U. S. Weather Bureau and presently chief climatologist, President's Advisory Committee on Weather Control, Washington, D.C., is a discussion in general terms of the problem of developing winter design temperatures. Simplifying assumptions are introduced which make possible the development of design values from available information. Climatological analysis is applied on this basis and this provides a range of design values offering the advantage of flexibility in application. This paper is a result of study conducted under guidance of the TAC on Weather Data with the ultimate objective of making revised data available for use of everyone concerned.

Analysis of an Air Conditioning Thermal Circuit by an Electronic Differential Analyzer is a paper which is the result of work carried on by the ASHAE at its Research Laboratory in Cleveland, Ohio. The authors are G. V. Parmelee, senior research supervisor, ASHAE Re-

Quick Picture of the "Big Week"

ASHAE MEETING

Technical sessions at 9:30 a.m. Monday, Tuesday, Wednesday and Thursday at the Conrad Hilton, simultaneous sessions being held Tuesday and Wednesday. See program for full information.

EXPOSITION

Opens Monday at 2 p.m. at the International Amphitheatre and daily Tuesday through Friday at 12 noon. Closing hour each day is 10 p.m., except Friday at 6 p.m. See list of exhibitors and diagram of the exposition layout for full information on "who, what and where."

THE LIGHTER SIDE

ASHAE reception (with refreshments) Sunday at 3 p.m. at the Conrad Hilton Welcome luncheon at the Conrad Hilton, 12 noon on Monday Ladies "Talent and Tea" at the Sheraton Blackstone, 2:30 p.m. on Monday Informal reception and dinner in honor of Dr. Arthur Cutts Willard and four former associates, Monday at 5 p.m. at the Conrad Hilton Get-together party, Monday evening at 9 at the Conrad Hilton ASHAE Life Members "dutch treat" luncheon, Tuesday at 12:15 ASHAE Past Presidents' dinner, Tuesday, 7 p.m. . . . Luncheon and entertainment for ladies at South Shore Country Club, Wednesday at 12:30 Annual ASHAE banquet at the Conrad Hilton, Wednesday at 7 p.m.

Air Conditioned Hotel . . .



The trees in Grant Park, across Michigan Ave. from the Conrad Hilton, meeting headquarters, don't look this way this month but this summer scene is appropriate as the Hilton recently announced award of a contract for air conditioning its 3000 rooms.

Air Conditioned Hall . . .



This space at the International Amphitheatre will be filled with equipment displays rather than delegates to a political convention this month. The arena was air conditioned for the 1952 conventions.

search Laboratory and now with the Arabian-American Oil Co., Dhahran, Saudi-Arabia; P. Vance, Good-year Aircraft Corp., Akron, Ohio and now at Massachusetts Institute of Technology, Lincoln Laboratory, Cambridge, Mass.; and A. N. Cerny, research mathematician, ASHAE Research Laboratory. The test results obtained, it is believed by the authors and explained in this paper, demonstrate that the differential analyzer can be applied to solving practical problems of considerable complexity and will give engineers results with satisfactory precision.

Pulsations in Residential Heating Equipment presents the preliminary results of research jointly sponsored by the ASHAE, the AGA and OHI, conducted at the Battelle Memorial Institute as a part of the ASHAE research program. The authors are A. A. Putnam and W. R. Dennis, assistant division chief and principal physicist, respectively, at Battelle in Columbus, Ohio. Objectives included defining the fundamental nature of the pulsations and finding methods for their suppression or complete elimination. Motion picture studies and a record of the effects of important factors such as varying air-fuel ratios on oscillation are noted. Tests were conducted of both oil and gas fired furnaces.

The Dust Spot Method for Evaluating Air Cleaners is the result of research sponsored by ASHAE in cooperation with the Mechanical Engineering Department, University of Minnesota. The study was conducted by K. T. Whitby, research associate; A. B. Algren, professor; and R. C. Jordan, professor and head, all of the Mechanical Engineering Dept., University of Minnesota. With the dust spot method, dust laden air is drawn through a filter paper and the resulting spot is evaluated by visual comparison or by photometric measurement of the light transmitted or reflected by the paper. As a result of this study, the authors present a number of conclusions relative to the use of the dust spot method of evaluation.

A Symposium on Dehumidification, moderated by John Everetts,

Jr., Philadelphia will be conducted simultaneously Tuesday morning with the aforementioned session. Dehumidification by Refrigeration, Solid Sorbents, and Liquid Sorbents will be discussed by Walter E. Ellis, W. L. Ross and E. W. Gifford. The Economics of Dehumidified Storage will be presented by G. W. Higgs, Jr., and Prof. E. R. Queer will describe Typical Dehumidification Problems and Their Solutions.

And Two Wednesday Sessions

Cold Wall Effects In a Ceiling Panel Heated Room, by L. F. Schurtrum, supervising engineer, and T. C. Min, research engineer, both of the ASHAE Research Laboratory, concerns the combined effect of a cold wall or window and a heated ceiling panel on room air temperature, mean radiant temperature and air motion. Tests were made in the ASHAE environment room with heated panel areas near the cold wall to determine the extent to which such an arrangement could increase the air temperature and the radiant temperatures near the cold surface. Descriptions of the test procedures and the authors' conclusions are included in the paper.

Performance of Covered Hot Water Floor Panels, Part II — Room Conditions, by E. L. Sartain, head of the heating experimental laboratory, Modine Mfg. Co. and W. S. Harris, research professor of mechanical engineering, University of Illinois, is the second of a series concerning a panel heating investigation being conducted at the University of Illinois in cooperation with the Institute of Boiler and Radiator Manufacturers. Part I was a discussion of the effects of various floor coverings on the thermal characteristics of floor panels.

Thermal Design of Warm Water Concrete Floor Panels presents a simplified procedure for use in residences and commercial buildings. It complements the paper *Thermal Design of Warm Water Ceiling Panels* published in the ASHAE Transactions, Vol. 62, 1956. The procedures in both papers are based on experimental data obtained at the ASHAE Research Laboratory under the guidance of the ASHAE Technical Advisory Committee on Panel Heating and Cooling.

A Symposium on Industrial Ventilation, moderated by Prof. C. H. Pesterfield, East Lansing, Mich., will also be held concurrently Wednesday morning with the previous session. Subjects included are Control of the Industrial Environment, Peter J. Marschall, Chicago; Contaminant Control, K. E. Robinson, Detroit; Cleaning Industrial Effluent, J. M. Kane, Louisville; Summer-Winter Comfort Ventilation for Industry, B. R. Small, Pittsburgh; and Dust Particle Inertia and Various Consequences, W. C. L. Hemeon, Pittsburgh.

Last Session Thursday

Outlet Characteristics That Affect the Downthrow of Heated Air Jets, a paper which results from research sponsored by the ASHAE in cooperation with the Engineering Experiment Station of Kansas State College, was prepared by Linn Helander, professor and head; S. M. Yen, associate professor; and Wilson Tripp, professor, all of the Mechanical Engineering Dept., Kansas State College. The research was conducted under the guidance of the ASHAE Technical Advisory Committee on Air Distribution as a part of the Society research program and the data obtained will be of value to designers and application engineers.

Air Flow in Free Convection Over Heated Bodies is another paper which is the result of research sponsored by the ASHAE, in this case in cooperation with the Graduate School of Public Health, University of Pittsburgh and prepared by T. F. Hatch, of the Department of Occupational Health and D. Barron-Oronzco, Direccionde Hygiene Industrial, Mariano Escobedo #20, Mexico, D.F. Mr. Barron-Oronzco formerly was with the Department of Occupational Health, University of Pittsburgh. A part of the ASHAE research program, the material in this paper may be used as a basis for determining exhaust ventilation requirements for hot processes in industry.

Radioactive Process Ventilation, by S. H. Glassmire and J. P. Wahlen, staff members at the University of California Los Alamos Scientific Laboratory, summarizes ventilation requirements for laboratories handling radioactive materials. Working with atomic energy, it is pointed out, presents the industrial or occupational hazard of exposure to the effects of ionizing radiation. Generally this is minimized by shielding and by ventilation. Shielding reduces exposure by radiation outside the body, and proper ventilation is a prime precaution against internal exposure.

This paper concludes the final technical session of the 63rd annual meeting. Prior to adjournment, Pres. John W. James will call for the report of the resolutions committee and any unfinished or new business. The exposition will also be open on Friday from 12 noon to 6 p.m., however.

The next meeting of the Society will be the semi-annual meeting, June 24-26, 1957 at Murray Bay, Quebec. The 64th annual meeting will be in Pittsburgh, January 27-29, 1958.

● ● ●
turn page for complete Program ➡

PROGRAM

63rd Annual Meeting

AMERICAN SOCIETY OF HEATING AND AIR-CONDITIONING ENGINEERS

Chicago, February 25-28, 1957

(Registration, Technical Sessions, and Meetings
at The Conrad Hilton unless otherwise designated)

● Saturday — February 23

- 9:00 a.m. Membership Committee, B. W. Farnes, *Chairman*
- 10:00 a.m. Executive Committee, P. B. Gordon, *Chairman*
- 2:00 p.m. Finance Committee, A. J. Hess, *Chairman*
- 2:00 p.m. Research Executive Committee, B. H. Jennings, *Chairman*
- 2:00 p.m. Regions Central Committee, E. R. Queer, *Chairman*

● Sunday — February 24

- 10:00 a.m. REGISTRATION (*Beverly Room*)
- 10:00 a.m. Council Meeting (*Lipton Room — Stock Yards Inn*)
- 10:00 a.m. Committee on Research, B. H. Jennings, *Chairman*
- 3:00 p.m. Reception and Refreshments with an Hawaiian accent

● Monday — February 25

- 9:00 a.m. REGISTRATION (*Normandy Lounge*)
- 9:30 a.m. FIRST SESSION (*Waldorf Room*)
Call to Order — Pres. John W. James
Greetings by P. J. Marshall, *Chairman Committee on Arrangements*
Report of President — John W. James
Report of Council — A. V. Hutchinson
Report of Treasurer — R. A. Sherman
Study of Three Redwood Cooling Tower Packings, by W. W. Smith
Earth as Heat Source and Sink for Heat Pumps, by D. M. Vestal, Jr. and B. J. Fluker
From '36 to '56: Air Conditioning Comes of Age, by W. A. Grant
- 12:00 noon WELCOME LUNCHEON (*Grand Ballroom*)
Toastmaster: C. M. Burnam, Jr.
Speaker: Dr. Richard Heflebower, *Chairman*, Economics Dept., Northwestern University
- 2:00 p.m. EXPOSITION — Opening of 13th International Heating and Air Conditioning Exposition (*International Amphitheatre*). ASHAE Booth 701.
- 2:15 p.m. TAC on Air Cleaning, E. F. Snyder, Jr., *Chairman*
- 2:15 p.m. TAC on Air Distribution, W. O. Huebner, *Chairman*
- 2:15 p.m. TAC on Hot Water and Steam Heating, H. A. Lockhart, *Chairman*
- 2:15 p.m. TAC on Solar Energy Utilization, R. C. Jordan, *Chairman*

- 2:30 p.m. Ladies Talent and Tea (*Crystal Ballroom*, Sheraton Blackstone Hotel)
- 5:00 p.m. Informal Reception and Dinner for Dr. Arthur Cutts Willard* (*Williford Room*)
- 9:00 p.m. Get-Together Party (*Grand Ballroom*)

● Tuesday — February 26

- 9:00 a.m. REGISTRATION (*Normandy Lounge*)
- 9:30 a.m. SECOND SESSION (*Waldorf Room*)
Call to Order — 1st Vice Pres. P. B. Gordon
Report of Committee on Research — B. H. Jennings, *Chairman*
Revised Winter Outside Design Temperatures, by H. C. S. Thom
Analysis of an Air-Conditioning Thermal Circuit by an Electronic Differential Analyzer, by G. V. Parmelee, P. Vance and A. N. Cerny (by title only)
Pulsations in Residential Heating Equipment — Preliminary Results, by A. A. Putnam and W. R. Dennis
The Dust Spot Method for Evaluating Air Cleaners, by K. T. Whitby, A. B. Algren and R. C. Jordan
Report of Inspectors of Election
- 9:30 a.m. THIRD SESSION (*Grand Ballroom*)
Call to Order — Treas. R. A. Sherman
SYMPOSIUM ON DEHUMIDIFICATION
John Everetts, Jr., *Moderator*
Dehumidification by Refrigeration — Walter E. Ellis
Dehumidification by Solid Sorbents — W. L. Ross
Dehumidification by Liquid Sorbents — E. W. Gifford
Economics of Dehumidified Storage — G. W. Higgs, Jr.
Typical Dehumidification Problems and Their Solution — E. R. Queer
- 12:00 noon EXPOSITION
- 12:15 p.m. Life Members' Dutch Treat Luncheon
- 1:30 p.m. Nominating Committee Meeting
- 2:00 p.m. Guide Committee, M. W. Keyes, *Chairman*
- 2:15 p.m. TAC on the Heat Pump, F. R. Ellenberger, *Chairman*

*Friends and associates of Dr. Willard, a past president of the ASHAE, will pay a special tribute to him.

2:15 p.m. Joint meeting of TAC on Industrial Environment, P. J. Marschall, *Chairman*; and TAC on Physiological Research, M. K. Fahnestock, *Chairman*

2:15 p.m. TAC on Sorption, G. L. Simpson, *Chairman*

2:15 p.m. TAC on Sound and Vibration Control, H. A. Lockhart, *Chairman*

7:00 p.m. Past Presidents' Dinner

7:30 p.m. TAC on Heat Transfer Through Fenestration, R. W. McKinley, *Chairman*

7:30 p.m. TAC on Heating and Air Conditioning Loads, H. T. Gilkey, *Chairman*

7:30 p.m. TAC on Insulation, M. W. Keyes, *Chairman*

7:30 p.m. TAC on Thermal Circuits, S. F. Gilman, *Chairman*

7:30 p.m. TAC on Plant and Animal Husbandry, A. J. Hess, *Chairman*

Cleaning Industrial Effluent — J. M. Kane
Summer-Winter Comfort Ventilation for Industry — B. R. Small

Dust Particle Inertia and Various Consequences — W. C. L. Hemeon

12:00 noon EXPOSITION

12:30 p.m. Ladies Luncheon and Entertainment (South Shore Country Club)

2:00 p.m. Organization Meeting of 1957 Committee on Research

7:00 p.m. ANNUAL BANQUET (*Grand Ballroom*)

Toastmaster: W. A. Kuechenberg

Speaker: Dr. Preston Bradley, Pastor of Peoples Church, Chicago

Introduction and Installation of 1957 officers

Presentation of Past President's Award to John W. James

Presentation of F. Paul Anderson Medal to M. K. Fahnestock

● Wednesday — February 27

9:00 a.m. REGISTRATION (*Normandy Lounge*)

9:30 a.m. FOURTH SESSION (*Waldorf Room*)

Call to Order — 1st Vice Pres. P. B. Gordon

Cold Wall Effects in a Ceiling-Panel-Heated Room, by L. F. Schutrum and T. C. Min
Performance of Covered Hot Water Floor Panels, Part II, by E. L. Sartain and W. S. Harris

Thermal Design of Warm Water Concrete Floor Panels — A Design Manual prepared by a subcommittee of TAC on Panel Heating and Cooling and members of the staff of the ASHAE Research Laboratory

9:30 a.m. FIFTH SESSION (*Grand Ballroom*)

Call to Order — 2nd Vice Pres. E. R. Queer

INDUSTRIAL VENTILATION SYMPOSIUM

C. H. Pesterfield, Moderator

Control of the Industrial Environment — P. J. Marschall

Contaminant Control — K. E. Robinson

● Thursday — February 28

9:00 a.m. REGISTRATION (*Normandy Lounge*)

9:30 a.m. SIXTH SESSION (*Waldorf Room*)

Call to Order — Pres. John W. James

Outlet Characteristics That Affect the Downthrow of Heated Air Jets, by Linn Helander, Shee-Mang Yen, and Wilson Tripp

Air Flow in Free Convection over Heated Bodies, by T. F. Hatch and D. Barron-Oronzco

Radioactive Process Ventilation, by S. H. Glassmire and J. P. Wahlen

Report of Resolutions Committee

Unfinished Business

New Business

Adjournment

12:00 noon EXPOSITION

1:00 p.m. Organization Meeting of 1957 Council

(The Exposition will also be open Friday from 12 noon to 6 p.m.)

Committee Chairmen for ASHAE Meeting

General Chairman: Peter J. Marschall.

Vice Chairman: Harry G. Gragg.

Honorary Chairmen: Harry M. Hart,

Samuel R. Lewis, Arthur C. Willard.

Banquet Toastmaster: William A. Kuechenberg.

Ticket Reservations: G. Gill Freyder.

Entertainment: Joseph S. Kearney.

Hospitality: Herbert Kreisman.

Reception: M. W. Bishop.

Finance: E. P. Heckel, Jr.

Ladies: Mrs. Harry G. Gragg and

Manuel J. Bamond.

Publicity: Robert W. Roose.

Banquet: George V. Zintel.

Sessions: Lawrence O. Paul.

Transportation: Harold C. Stevens.

Registration: Robert J. Salinger.

Inspection Trips: John C. Scott.

Information: Edward R. Teske.

Facilities: Henry J. Couch.

Get-Together Party: Louis H. Streb.

Exposition: Will G. Pennington.

Welcome Luncheon: C. M. Burnam, Jr.

Orchestra, Acts: Harvey E. Anderson.

Engineer Develops as He Serves

... professional society meetings provide inspiration, friendships, and challenging opportunities to help advance the practice and knowledge of heating and air conditioning

By Samuel R. Lewis

IN 1906 the American Society of Heating and Ventilating Engineers, now called the American Society of Heating and Air-Conditioning Engineers, held its first summer meeting in Chicago.

I had joined the society that year, and I attended all the sessions. I have a photograph of the dinner party held in the old Auditorium hotel. Nearly all of the men shown in that picture have since gone ahead, leaving me to express their spirit of devotion to the ideals of the organization.

I remember particularly the discussions of engineering presentations by such men as Professor Kinealy of St. Louis, Thomas Waters, chief engineer of the Chicago board of education, George Mehring and William A. Pope, outstanding engineers-contractors, and the Mackay brothers.

Friendships Spark Interest

The friendship of these men to me, a novice, started the train of interest and participation that has endured for 50 years. Association with such educators as Carpenter of Cornell, Kent of Syracuse, Rowley of Minne-

sota, Willard of Illinois, Larson of Wisconsin, who attended faithfully most of the society sessions, has continued to be an inspiration to me. By "educators" I mean not only nationally renowned deans of science in universities, but also the experienced thinker-educators who may not have had degrees, but who practice the profession of designing and installing equipment for heating, piping, and air conditioning systems in all types of buildings.

The leaders in our profession always have been remarkable for their generosity and friendliness, and are outstanding to this day for these qualities.

I have participated in committees, such as those that developed tables of pipe sizes for steam and hot water heating, and have been helped by more experienced men to implement them. The society has assisted materially in promoting health as well as comfort in living.

Many Pleasures

I never refused to embrace an opportunity to exploit my ignorance in society service, but I accumulated and sometimes recorded a part of the data that the older men had employed but had not disseminated. I knew and worked with the men who first developed the ASHVE Guide, and ultimately I came to re-edit the early editions.

I knew the men who founded the society's research program and

was allowed to assist them. I watched the laboratory develop, first in New York, then in Pittsburgh in association with the Bureau of Mines, and at present in Cleveland.

Eventually, as chairman of the committee on research, I helped develop cooperative research with several of the universities.

Through all these years, due to the friendship of the members of our society, I have acquiesced in serving through nearly all of the elective and appointive functions of the society.

I have traveled and lectured for the society from the Gulf of Mexico to Canada and from the Pacific to the Atlantic oceans, in many of the great institutions of learning, and have known and have admired the men who direct the engineering activities in these places of learning. Without these contacts through our society my life would have been much less happy.

Meetings Valuable

This message, then, is intended to suggest that any young engineer will have as favorable a chance as I had, if he attends the meetings of the society, either national gatherings or the local monthly chapter meetings. These chapters are increasing in number, and they teem with local experiences to challenge any engineer.

If the young engineer gives to others, he will thereby present to the others the pleasure of giving. This will enrich the lives of us all.

SAMUEL R. LEWIS, consulting mechanical engineer, is a past president of the American Society of Heating and Air-Conditioning Engineers.

Use Handy Show Guide in Chicago

... to get the most out of the 13th International Heating and Air-Conditioning Exposition

NO ONE sufficiently interested in heating and air conditioning to attend the annual meeting of the American Society of Heating and Air-Conditioning Engineers in Chicago, February 25-28, should miss seeing the International Heating and Air-Conditioning Exposition in the International Amphitheater, February 25-March 1. Held only once in two years, the show is the greatest collection and display of products and equipment in this field that can be found in any one place in the world.

A trip to the Exposition, aside from transportation, will cost the visitor nothing but his time, for there is no admission charge. A registration card filled out by the visitor is all that is needed for admittance.

Exposition Is for You

This Exposition is planned for you! It can give you more information and a better understanding than could be obtained from poring through countless catalogs or other published literature.

If you are a representative of one or more manufacturers, you may see at the Exposition applications of products allied with your own that may suggest wider uses of the product you sell. Some exhibits will undoubtedly create ideas for new developments.

The Exposition also provides visual education. Here you will see, in most cases, the full size physical dimensions of products you may previously have seen only in illustrations. You will see how they line up with other products if they are component parts of a system. Many of the exhibits will be operating, so that the visitor may realize possibilities which some catalogs may not suggest. Exhibitors' representatives in

attendance at the exhibits can answer questions relating to the products and their applications.

Plan Your Visit in Advance

As this is really a Big Show, a little planning in advance as to how you are to see it will be well worthwhile. The time element may be important to some visitors, and to wander about the Exposition aimlessly might be both unsatisfactory and tiring. For that reason it is suggested that you plan your visit to the show before you get there. Is your interest merely general or is it specific? Surely there are certain products that you will want to see displayed and certain exhibitors that you will want to meet if only to renew acquaintances.

To assist the visitor to the Exposition, this Show Section has been compiled, giving the names of exhibitors and a brief description of what products will be displayed. A Show Guide is also included ahead of this section. This will be found very useful, for it contains a floor plan of the entire Exposition showing locations and numbers of exhibit spaces. A convenient feature of this card is that it can be folded to pocket size. Space is provided on it for dates and notes that can be jotted down as you go through the show.

Walk Right Through First Time

Having arrived at the International Amphitheater it is suggested that the visitor first walk through the whole Exposition without stopping. In doing so a definite path should be followed such as starting at either outside aisle and going up and down parallel aisles. This will give you a general idea of the layout of the Ex-

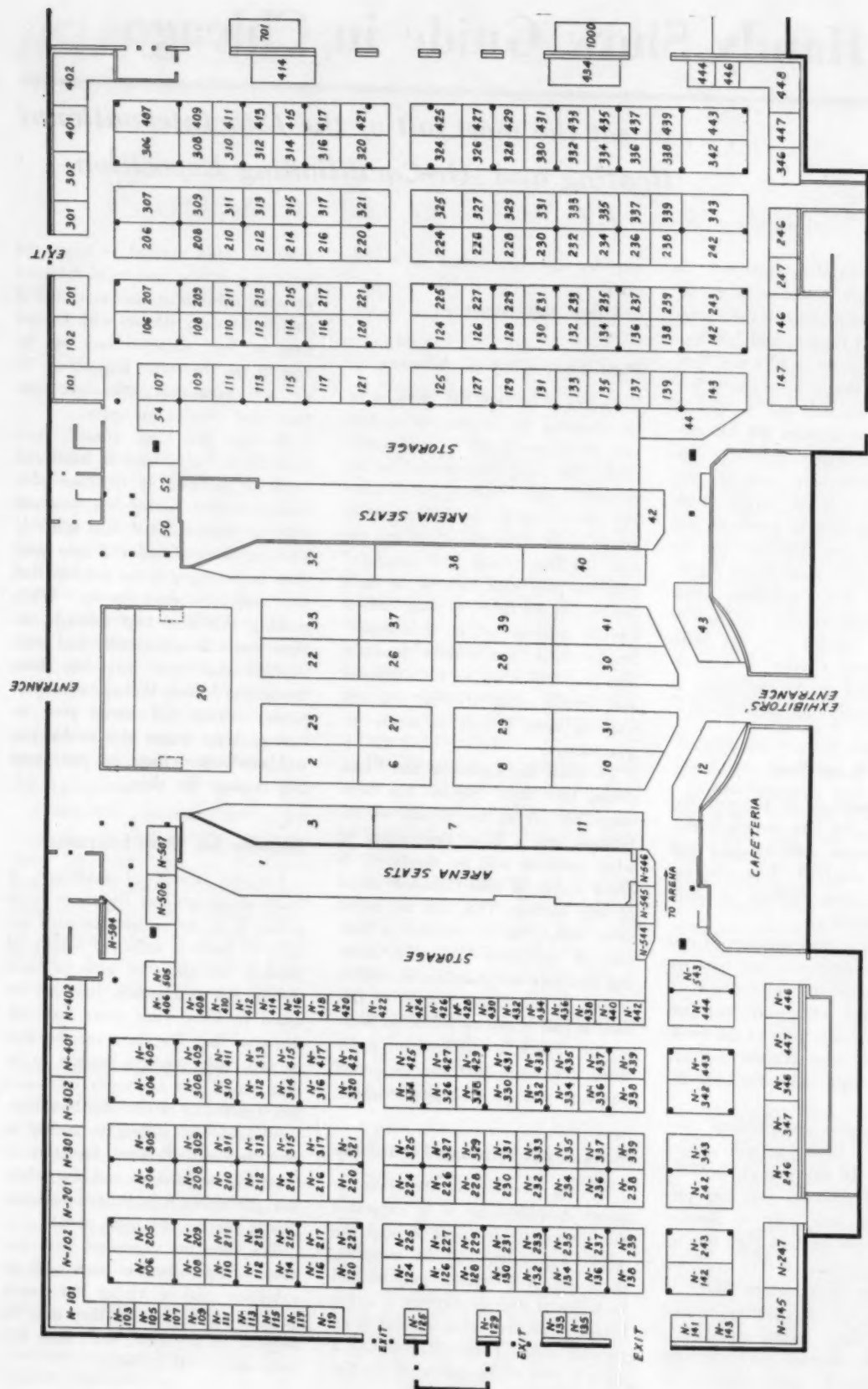
position. This method is suggested because it is very easy to be detained at some exhibits at the start, and if that is the case, visitors with limited time at their disposal may not be able to see the entire Exposition. So we say, keep going the first time there and plan to go again.

On this first time around, have your Show Guide card in hand and circle or indicate on the floor plan certain exhibit spaces that you will want to return to later. That will help you get oriented and will save your time in returning to the exhibits that you especially want to see. While making this first trip through the show you will undoubtedly find some exhibits that you may not have thought of before. Perhaps some particular exhibit will attract your attention. Make a note of it so that you will surely stop there on your next trip through the show.

Register for More Literature

For the benefit of exhibitors, a word about product literature is in order. It is not possible in each exhibit to have a sufficient supply of product literature to give to each visitor. For that reason you may be asked to leave your name and address so that literature can be sent to you. Some visitors hesitate to do that, but if you are really interested and entitled to receive the literature, you should be willing to accede to such requests. Product literature is expensive to produce and the exhibitor producing it is entitled to know that it reaches the right people.

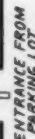
The thoughts expressed here are those of one who has been both an exhibitor and a visitor for many years. It is hoped that they may be helpful. In any case, don't miss this great show!—D. L. MILLS



NORTH END OF AMPHITHEATRE

For further information, you are invited to inquire at the Keeney Publishing Co. — publisher of Heating, Pip-ing & Air Conditioning and of American Artisan — ex-hibit in Booth No. 924

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EXPOSITION EXHIBITORS AND THEIR EXHIBITS

HERE ARE THE names of the exhibitors who are scheduled for the 13th International Heating & Air-Conditioning Exposition, per latest advice at press time from the exposition management.

Those listed with information on the products they will exhibit and the names of representatives who will be in

attendance furnished these details direct to the publisher. With the booth numbers and the accompanying diagram of the exhibit hall, which are published here, each exhibitor is easily located.

The exposition is under the management of the International Exposition Co., E. K. Stevens, manager.

A-J MFG. CO., 3601 E. 18th St., Kansas City 27, Mo. — Booths 621, 623

In attendance: Arthur S. Hurt, Jr., Margaret E. Hurt, Ernest S. Preuitt.

Exhibiting: Air conditioning registers and grilles, no-vision door or partition grilles.

A-P CONTROLS DIV., CONTROLS CORP. OF AMERICA, 2450 N. 32nd St., Milwaukee 45, Wisc. — Booth 655

In attendance: Del Moerick, Jim Tate, John Hall, Willard Krueger, Larry Thompson, H. Welch.

Exhibiting: Refrigeration and air conditioning controls; gas and oil heating controls.

ACE ENGINEERING CO., 1435 W. 15th St., Chicago 8, Ill. — Booth 1141

In attendance: I. L. Schurman, R. W. Baroach, J. W. Cowan, A. F. Jelenc, R. E. Hoffman, S. Padove.

Exhibiting: Horizontal rotary oil burners for Nos. 3 and 6 fuel oil, and combination oil-gas burners. Improved forced draft packaged fuel oil burning systems for use with any pressurized scotch marine boilers will be featured.

ACME INDUSTRIES, INC., 600 N. Mechanic St., Jackson, Mich. — Booth 903

In attendance: K. A. Weatherwax, P. A. Weatherwax, W. R. Eichelberger, E. B. Dunphy, W. M. Hassenplug, D. G. Merrill, J. J. Bell, W. E. Lloyd, I. E. Corwin, Valdi Landman, H. W. Smith, Banks Edwards, Jay Harris, L. R. Smith, W. C. Rehor, K. D. Cunningham, L. Bonhotal.

Exhibiting: "Flow-Cold," "Flow-Therm" and "Flow-Pac" packaged liquid chillers; "Flow-Mizer" evaporative condensers and cooling towers; "Flow-Cold" cooling towers; shell and tube and shell and coil condensers; water coolers; remote room conditioners. New direct drive large tonnage packaged liquid chillers, new cooling towers with capacity range 3 through 100 tons, new air cooled packaged chiller for residential and commercial air conditioning and commercial and industrial process cooling, will be featured.

ACRO MFG. CO., THE, CRISE CONTROLS DIV., 2040 E. Main St., Columbus 16, Ohio — Booth 1008

ADDISON PRODUCTS CO., Railroad St., Addison, Mich. — Booths 649, 651

In attendance: V. C. Knight, H. M. Jones, L. G. Underhill, W. A. Hames, R. C. Robertson, K. F. Rumohr, S. E. Vickers, R. E. Cappel, J. H. Jennings.

Exhibiting: Air and water cooled residential air conditioners, dehumidifiers, compressor-condenser units, cooling units, special refrigerating systems.

AEROFIN CORP., 101 Greenway Ave., Syracuse 3, N. Y. — Booth 328

AEROQUIP CORP., Jackson, Mich. — Booth 129

AIRCONDITIONED AGE, 92 Martling Ave., Tarrytown, N. Y. — Booths 1239, 1241

Exhibiting: Publication.

AIR CONDITIONING, HEATING AND VENTILATING, 93 Worth St., New York 13, N. Y. — Booths 1016, 1018

Exhibiting: Publication.

AIR CONDITIONING & REFRIGERATION NEWS, 450 W. Fort St., Detroit, Mich. — Booth 668

Exhibiting: Publication.

AIR CONTROL PRODUCTS, INC., 357 Center St., Dept. B, Coopersville, Mich. — Booth 342

In attendance: R. L. Leigh, K. L. Babcock, Al G. Biela, George A. Arehart, and others.

Exhibiting: Registers, grilles and diffusers, including air conditioning registers, "Multi-Trol" commercial registers, ceiling diffusers, baseboard diffusers, and complete line of metal ventilators.

AIR CONTROLS, INC., 2310 Superior Ave., Cleveland 14, Ohio — Booth 425

In attendance: B. G. Krause, N. G. Busch, Robert Larkin, G. L. Schwarz, Bob Schwarz, H. T. Van Egmond.

Exhibiting: Air conditioning blowers, attic fans, exhaust fans, blower filter units, blower wheels.

AIR DEVICES, INC., 185 Madison Ave., New York 16, N. Y. — Booth 1015

In attendance: C. N. O'Day, G. J. Sweeney, P. G. Daves, J. O'Day, R. MacLean, R. Barry, T. A. Hughes.

Exhibiting: Square, rectangular, stripline (slot type), circular (adjustable and non-adjustable) "Agitair" diffusers; high pressure terminals; air and grease filters; exhausters. High pressure terminals for control and distribution of air in high velocity systems, available in a range of sizes and types for overhead or perimeter air distribution in single or dual duct applications, will be featured.

AIR DISTRIBUTION PRODUCTS, 116 S. La Brea, Los Angeles 36, Calif. — Booth 209

In attendance: R. C. McCollom, Dave Rifkin, A. B. Beardsley.

Exhibiting: Ceiling diffusers and volume controls.

AIR DOOR INC., DIV. OF NEW CASTLE PRODUCTS, INC., 1711 "I" Ave., New Castle, Ind. — Booth N-210

In attendance: R. J. Piro, E. J. Kurek, D. E. Baldock, Jay W. Smith, H. D. Oberdorfer, R. W. Wittenbraker, D. C. Danielson, R. H. McConville, J. D. McIntyre, J. F. Quinn, Jr., H. D. Mastin, Jr., B. W. Merrill.

Exhibiting: Full scale cross-section of a complete, self-operating air door, demonstrating this method of protecting an entrance or opening against infiltration of dust, insects, foreign matter and weather, without the use of ordinary doors.

AIR-FACTORS, INC., 1624 S. Raymond, Monrovia, Calif. — Booth N-224

In attendance: Frank L. McDonald, and various representatives.

Exhibiting: Air diffusers, registers and grilles, volume controls, dampers and louvers. Air curtain diffusers and modular ceiling air diffuser will be featured.

AIRFLEX CORP., 522 N. Hickory, Champaign, Ill. — Booth N-212

AIRFLOOR CO. OF CALIF., INC., 13729 E. Rosecrans Ave., Norwalk, Calif. — Booth N-316

In attendance: Carl Eugene Williams, Louis J. Leemhuis.

Exhibiting: Metal form work for warm air panel heating and air conditioning system.

AIR-MAZE CORP., 25000 Miles Rd., Cleveland 28, Ohio — Booth 550

In attendance: W. B. Watterson, F. P. Purvis, J. Clem, A. P. Dovola, N. L. Lamprecht, W. J. Decker.

Exhibiting: Electrostatic air filters, automatic curtain type air filters, air filter panels. Washable dry type air filter will be featured.

AIR MOVING AND CONDITIONING ASSOCIATION, INC., 2159 Guardian Bldg., Detroit 26, Mich. — Booths N-545, N-546

In attendance: Lewis O. Monroe, Robert E. O'Rourke.

Exhibiting: No products will be exhibited, but bulletins will be available for distribution, including a new one on "Prototype Fan Testing". Activities of AMCA will be explained.

AIR-PATH PRODUCTS CO., 4620 Doll Ave., Baltimore 15, Md. — Booth 320

In attendance: Robert A. Lucat, Allen Alt, Sr., Harry Dischinger, Stanley Wojick.

Exhibiting: Louvers, dampers, door grilles.

AIR & REFRIGERATION CORP., 439 Madison Ave., New York 22, N. Y. — Booth 41

In attendance: Walter L. Fleisher, Daniel C. Lindsay, Harry C. Jones, Joseph H. Burges, Joseph L. Blackshaw, Harvey S. Dutcher, Robert W. Gaines, Richard W. Burges.

Exhibiting: Articulated air conditioning unit, comprising controlled outside and return air mixture, filter bank, sprayed direct expansion coil unit and fan, with the refrigeration compressor, receiver and evaporative condenser also enclosed in the same housing.

AIRSERCO MFG. CO., INC., 435 Melwood St., Pittsburgh 13, Pa. — Booth 301

AIRTEMP DIV., CHRYSLER CORP., 1600 Webster St., Dayton 1, Ohio — Booths 12, 43

In attendance: Members of Chicago area field staff (headed by D. E. Parke, regional manager) will be in attendance. All Airtemp top officials will attend the exposition and be available at the firm's exhibit.

Exhibiting: Residential cooling and heating equipment; commercial air conditioning units, room and car air conditioners. Making their initial show appearance will be the 1957 "Dandy Dozen—plus One" room air conditioners. Shown also for the first time will be the new car air conditioning system, displayed in a Chrysler New "3 hp" air cooled packaged home air conditioning unit will also be introduced.

AJAX BOILER & HEATER CO., 1519 W. 132nd St., Gardena, Calif.—Booth N-326

In attendance: Theodore Fulkerson, G. N. Laushkin, L. E. Donahue.

Exhibiting: Gas fired water heating boiler with copper tubes and metalized headers; oil fired steam boiler. Boiler with internal heat exchanger for hot water and steam installations will be featured.

ALCO VALVE CO., 865 Kingsland Ave., St. Louis 5, Mo.—Booth 1163

In attendance: J. E. Dube, C. B. Lockwood, G. J. Boepple, A. L. Baker, J. A. Schenck, T. J. Phillips, R. N. Meyer.

Exhibiting: Refrigeration controls, including thermostatic expansion valves, "Venturi-Flo" distributors, solenoid valves, pressure regulators, reversing valves for heat pump operation.

ALDRICH CO., Wyoming, Ill.—Booth 1051

In attendance: P. M. Stephenson, N. Howard, B. Mulder.

Exhibiting: "Heat-Pak" series "C" ("Gulf Stream") and series "D" low pressure steel heating and hot water supply boiler-burner units (oil fired and gas fired); high pressure conversion oil burners with range of 0.75 to 19.00 gph. Availability of boiler-burner units for diversified heating needs will be featured. The same basic boiler-burner units are available as galvanized, high delivery, integral, compact hot water heaters with outputs from 115 to 950 gph, 100 F rise.

ALLEN-BRADLEY CO., 136 W. Greenfield Ave., Milwaukee 4, Wis.—Booths 556, 558, 560

In attendance: D. L. Anderson, James N. Farley, K. E. Gorder, Leon Murray, H. Rosenkranz, C. T. Roy, Robert E. Schmid, L. E. Stieghorst, Richard Wessling, J. K. McKnight, J. W. Clagett, Willett C. Kubec.

Exhibiting: Manual and magnetic motor starters for full voltage and reduced voltage starting; pilot devices and accessories, including pressure switches, temperature switches, float switches, control relays, push buttons, etc. Standard duty push buttons with contact mechanism in the cover to speed up installation and maintenance, and domestic pressure controls of new compact design with handy snap-off cover, will be featured.

ALLIED CHEMICAL & DYE CORP.—see GENERAL CHEMICAL DIV.

ALLIED THERMAL CORP.—see TUTTLE & BAILEY DIV.

ALLIS-CHALMERS MFG. CO., P. O. Box 512, Milwaukee 1, Wis.—Booth N-315

In attendance: W. L. Manly, J. C. Collier, S. E. Bovim, S. S. Brooks, C. F. Freund, A. H. Kaseen, K. V. Knudsen, G. H. Krohn, W. F. Sickels, B. E. Southard, E. F. Griewe, R. N. Brown.

Exhibiting: Pumps, motors, control, and "Tex-rope" V-belt drive equipment.

ALLIS CO., THE LOUIS, 427 E. Stewart, Milwaukee 1, Wis.—Booth N-305

In attendance: W. E. Barts, F. G. Luber, W. F. Schrieber.

Exhibiting: Motors designed for the heating and air conditioning industry.

AMERICAN AIR FILTER CO., INC., 215 Central Ave., Louisville 8, Ky.—Booths 38, 40

In attendance: Robert W. Nelson, John W. Frazier, Richard W. Smith, Irving W. Clark, Frank T. Carroll, Frank E. O'Callaghan, W. J. Killian, Charles S. Stock, C. A. Pickett, Robert J. Walker, Dale Barnstable, Robert Whyte, Earl Evans, Thomas R. Chambers, Arthur Nutting, John Hellstrom, W. G. Frank, Jack W. O'Neil, Robert D. Moore, Edward C. Arenz, Frank Delph, H. J. Noles, C. D. Wright, R. G. Pate, A. T. Miller, H. H. Bishop, John M. Kane, B. W. Currier, W. B. Bateman, Ralph W. Arboe, John J. Willis, Howard M. Fitch, A. F. Hubbard, John Ehretzman, Richard Leutwiler, Paul

Hultgren, Glen Snagel, Gordon Baustain, W. G. Hole, F. Mallozzi.

Exhibiting: "Roll-O-Matic" air filter, "Electro-Cell" electronic air filter, "Multi-Duty" air filter, "Multi-Pak" air filter, "PL-24" air filter, special air filter, "Roll-O-Mat" filtering media, "Amerglass" disposable air filters, "Electro-Klean" electronic furnace filter, air conditioning unit ventilator, "Roll-O-Vent" heating and ventilating unit, radiator valves, thermostatic traps, float and thermostatic traps, "Select-O-Therm" high vacuum control systems, power specialties, strainers, heat exchangers, condensation pumps, convectors, zone control systems, console heater, unit blowers, unit ventilator, accessories, "Roll-O-Vent" heating and ventilating unit, "Roll-O-Matic" air filter, "Multi-Pak" air filter, and "Electro-Klean" electronic furnace filter will be featured.

AMERICAN ARTISAN, 6 N. Michigan Ave., Chicago 2, Ill.—Booth 924

In attendance: Charles E. Price, Wallace J. Osborn, Robert A. Jack, C. M. Burnam, Jr., Clyde M. Barnes, John H. Reock, George C. Cutler, Thomas V. Johnson, David V. Mahan, Robert J. Osborn.

Exhibiting: American Artisan magazine, technical books, market information.

AMERICAN BLOWER—DIV. OF AMERICAN-STANDARD, 8111 Tireman Ave., Dearborn, Mich.—Booths 22, 26

In attendance: Chicago district office personnel.

Exhibiting: Commercial packaged air conditioners, "Gyrol" fluid drive, refrigerating machine, high pressure fan, unit heaters, propeller fans, unit room conditioners, air conditioning unit components. 1957 line of commercial packaged air conditioners, low horsepower Class 2 fluid drive and a special illustrative display of the "Tonrac" single-stage hermetic centrifugal refrigerating machine will be featured, as will a special grouping of cabinet type air conditioning unit components and sub-assemblies, including a capillary section, a sprayed coil section and a fan section.

AMERICAN COILS CO., Newark, N. J., and Farmingdale, N. J.—Booths 346, 447

In attendance: Michael Parcaro, James Turner, George Mathews, Pete Hatcher, Louis Meringo, John Kirk, Lawrence Jackiewicz, Joe Di Veglio, Bill Dinger, Thomas Krex, Howard Forman, John Hamilton, J. Kohn, Frank S. Grott, Harry Bell, M. L. Judd, Rex Reece, H. W. McDowell, Harry Materne, Dan Mandery, M. J. De Angelo, O. O. Taylor, Robert Slater, A. Locke, Wm. T. Cass, W. F. McLindon, L. McCauley, R. E. Vernon, Mr. Parmalee, Mr. Hull, George Rosner, Jack Wallace, Matt Sloat, M. R. Lederer.

Exhibiting: Air conditioners, 3-15 hp; heat pumps, 3-15 hp; air cooled chillers, 2-5 hp; packaged chillers, water cooled, 3-15 hp; cooling towers, 3-60 tons; air handling units; air cooled condensers. New twin circuit dual 10 and 15 hp packaged chillers; new style heat pump, water to air, 3-15 hp; air cooled condensers, 3, 5 and 7½ hp; and air handling units, 3-15 hp will be featured.

AMERICAN FOUNDRY & FURNACE CO., Washington & McClun Sts., Bloomington, Ill.—Booth 733

In attendance: Richard D. Long, E. J. Anselman, G. McQuown, Wm. J. Klingberg.

Exhibiting: Models of heating and ventilating equipment; "Afco" ventilating specialties, such as louvers, dampers, etc.

AMERICAN FURNACE CO., 1300 Hampton Ave., St. Louis 10, Mo.—Booth 814

In attendance: R. A. Cromwell, L. J. Koch, H. R. Mitchell, R. L. Archibald, Chas. Phillips, C. S. Franke, L. Gary.

Exhibiting: "Afco Base Blo," counterflow, horizontal warm air furnaces; "Comfort-maker" air cooled cooling equipment. Applications of air cooled cooling to existing or new installations of warm air heating systems and new line of "Comfortmaker" air conditioning units will be featured.

AMERICAN GILSONITE CO., 3537 Lee Rd., Cleveland 20, Ohio—Booth 1167

In attendance: John F. Williams, Ernest T. Smith, H. E. Knauper, L. C. Wooster.

Exhibiting: "Gilsulate" insulation for hot underground piping.

AMERICAN HYDROVAC, DIV. OF PITZ FOUNDRY INC., 290 Scholes St., Brooklyn 6, N. Y.—Booth 568

In attendance: Robert G. Pitz, Robert M. Pitz, John C. Pedersen, Raymond E. Miller.

Exhibiting: Condensate-vacuum heating pumps.

AMERICAN IRON AND STEEL INSTITUTE—see COMMITTEE ON STEEL PIPE RESEARCH

AMERICAN MACHINE AND METALS, INC.—see De BOTHEZAT FANS DIV.

AMERICAN SOCIETY OF HEATING AND AIR-CONDITIONING ENGINEERS INC., 62 Worth St., New York 13, N. Y.—Booth 701

In attendance: E. R. Kaiser, C. M. Humphreys, R. G. Huebscher, L. F. Schutrum, W. F. Kerka, T. C. Min, W. F. Hopper, J. E. Loucks, A. V. Hutchinson, C. H. Flink, C. H. B. Hotchkiss, W. M. Vidulich, F. W. Hofmann.

Exhibiting: Highlights of the activities of the Society in the fields of basic and fundamental research, publications and services to the membership, profession and industry.

AMERICAN-STANDARD AIR CONDITIONING DIV., 40 W. 40th St., New York 18, N. Y.—Booth 23

In attendance: W. G. Senft, A. D. Sullivan, D. C. McClymont, J. J. Robbins, R. L. Herron, T. J. Bujewski, H. W. Klein, M. G. Nelson, J. P. Farrell, R. J. Berkshire.

Exhibiting: Winter, summer and year 'round residential air conditioning equipment, gas and oil fired; commercial package-type summer air conditioners. Six new air cooled units "designed to meet the requirements of the rapidly expanding market for waterless air conditioning systems," plus a new horizontal winter air conditioner, will be featured. They include a 3 hp outdoor condensing unit; year 'round units equipped for gas-fired heating; year 'round units equipped for oil-fired heating; a counterflow evaporator unit; a blower-equipped evaporator unit; and a new horizontal air-flow evaporator unit that replaces a previous design.

AMERICAN-STANDARD, KEWANEE BOILER DIV., 101 Franklin St., Kewanee, Ill.—Booth 27

In attendance: E. M. Palmer, W. B. Russell, H. W. McClure, G. C. Zang, J. J. Graham, L. W. Charlet, C. K. Ferguson, T. B. Mansfield, R. M. Turner, K. W. Waltz, J. M. Hartman, E. C. Thompson, E. E. Druin, P. E. Mutchler, Russell Astrouski, Bill Cummings, O. J. Roberts, P. J. Miller, Clyde Stovall, Thomas McGlenn, John C. Walter, R. E. Sjoborg, Carlton F. Olsen, W. E. Foskett, Roy E. Meilner, Edward W. Irwin, John T. McGuire, John Soutar.

Exhibiting: "Job-Built Square-Heat" type "R" boiler, "GWB-1" gas-fired boiler-burner unit, low-set type "C" boiler, welded "Scottie Jr." gas-fired boiler-burner unit, welded "Scottie Jr." oil-fired boiler-burner unit, "Job-Built" boiler, a recently developed product designed for easy installation in existing boiler rooms and shipped to the job site in sections small enough to pass through the average size door, will be featured, as will all welded "Scottie Jr." boilers for oil or gas firing, completely packaged Scotch type boiler-burner units from 18 to 65 hp.

AMERICAN-STANDARD PLUMBING AND HEATING DIV., 40 W. 40th St., New York 18, N. Y.—Booth 20

Exhibiting: Gas-fired boilers, oil-fired boilers, baseboard heating, radiation, commercial systems and residential systems. New "Arco-leader" oil-fired boiler package; new "A-7"

oil-fired boiler; new high pressure, single adjustment oil burner; new high capacity "Radiantrim"; new self-contained "Remot-air" air conditioning system; new residential "Remotaire" air conditioning system, will be featured.

AMERICAN-STANDARD—also see AMERICAN BLOWER

AMMERMAN CO., INC., 110 N. Second St., Minneapolis 1, Minn.—Booth 126

In attendance: C. L. Ammerman, E. A. Ammerman, T. L. Ammerman, R. T. Gadbois, C. E. Sparrow, Robert Van Nest.

Exhibiting: New "Airmepeler Loboy" power utility vent roof exhausters with backward or forward curved wheels enclosed in standard scroll housings. Change in outward appearance of utility vent set "to meet the need of modern building design" will be featured.

ANCHOR DIV., STRATTON & TERSTEGGE CO., P. O. Box 311, New Albany, Ind.—Booth 659

In attendance: J. L. Meagher, E. J. Fackler, J. K. Hammond, C. E. Gehlbach, R. J. Adams, Denton Tucker.

Exhibiting: Furnaces, gas and oil; air conditioners, remote high side air cooled; boilers, gas and oil, steam and hot water; conversion shell head oil burner; conversion gas burners; stokers.

ANDERSON CO., V. D., THE DIV. OF INTERNATIONAL BASIC ECONOMY CORP., 1935 W. 96th St., Cleveland 2, Ohio—Booth 747

In attendance: Wm. J. Gleason, Jr., W. P. Nevins, M. J. Toth, E. A. Broestl.

Exhibiting: Steam traps, air release valves, strainers, purifiers.

ANEMOSTAT CORP. OF AMERICA, 10 E. 39th St., New York 16, N. Y.—Booth 6

In attendance: W. F. Peters, W. Floyd Self, J. M. Kearney, A. R. Gilbert, F. B. Kurth, W. H. Neekamp, F. Honerkamp, G. R. Wallen, J. Mutoli, W. O. Huebner, W. A. Kurnik, R. F. Hayes.

Exhibiting: Conventional and high velocity air diffusers; "Anemotherm" air meters for direct reading temperature, velocity and static pressure.

ANSUL CHEMICAL CO., 1 Stanton St., Marinette, Wis.—Booth 315

In attendance: L. C. McKesson, George Vermilye, John Bopp, E. A. Beacham, E. M. Billings, Herb Dill, T. O. Lester, J. H. Jarrett, H. C. Higley, Brad Sebstad, Jim Bowman.

Exhibiting: Sulfur dioxide and methyl chloride refrigerants, refrigeration oil, "T-Flo" drier, "Dry-Eye" moisture indicator which indicates dangerous presence of too much moisture by changing color and when used in combination with "T-Flo" drier, "becomes complete moisture control system for refrigeration equipment."

ARKLON MFG. CO., P. O. Box 3501, Cleveland 18, Ohio—Booth N-333

ARMCO STEEL CORP., 703 Curtis St., Middletown, Ohio—Booth N-205

In attendance: Donald D. Evans, William H. Withey.

Exhibiting: "Aluminized" steel, "Zincgrip" and "Zincgrip-Paintgrip", stainless steel, cold rolled "Paintgrip", "Aluminized Steel Type 1", an aluminum coated cold rolled steel recently approved by AGA-ASA for use in heating elements of gas fired gravity and forced air central furnaces, gravity and fan type floor furnaces, gravity and fan type vented recessed heaters, unit heaters and gas fired duct furnaces at temperatures up to 1030 F (plus room temperature), an increase of 225 F over the old maximum permissible temperature, will be featured.

ARMSTRONG CORK CO., Liberty St., Lancaster, Pa.—Booth 136

In attendance: J. P. Sawyer, M. F. Kottmeier, H. R. Caswell, C. W. Gundlach, F. F. Hauser, D. R. Herb, J. B. Nelson, W. C. Ryckman, A. B. Condon.

Exhibiting: Job adaptability and installation techniques applicable to "Armaflex", a new flexible foamed plastic pipe insulation; a short program of booth demonstrations will illustrate recommended installation techniques for all types of pipe and tubing. Other products featured include "Armoglas" duct insulation and pipe covering materials, insulation adhesives and finishing materials, and "LT" cork covering and corkboard.

ARMSTRONG FURNACE CO., DIV. OF NATIONAL UNION ELECTRIC CORP., 851 W. Third Ave., Columbus 8, Ohio—Booths 302, 401, 402

In attendance: W. J. Olsen, George Zimbleman, Charles L. Brooks, Herb Hays, J. R. Swinehart, Ed. Clifford, J. R. MacDowell, Lou Burton, Earl Styr, J. R. Irwin, Don Thomson, G. M. Mahnensmith, T. J. Echternacht, Jim Buchwald, Carl Bryson, Charles Daugherty, Dan Calori, Al Shepard.

Exhibiting: Residential warm air heating equipment; coal, gas and oil furnaces; industrial gas or oil furnaces; residential air conditioners, air or water cooled, in 2, 3 and 5 ton capacities. New 1957 gas and oil lo-hi boy model furnace line with either direct or belt drive blower, and "Cerami-flex" refractory liner for oil furnace heat exchangers will be featured.

ARMSTRONG MACHINE WORKS, 874 Maple St., Three Rivers, Mich.—Booths 1158, 1160

In attendance: O. E. Ulrich, T. H. Rea, T. M. Reed, Charles Daugherty, T. H. Pass.

Exhibiting: Steam traps, air vents, pipe strainers, industrial and domestic humidifiers, heat controls for hot water heating systems. New large capacity domestic "Humid-I-Maker" for controlling relative humidity in hot water heated homes, as well as in steam and warm air heated homes, will be featured.

ARROW-HART & HEGEMAN ELECTRIC CO., THE, 103 Hawthorn St., Hartford 6, Conn.—Booth 339

AUER REGISTER CO., THE, 6600 Clement Ave., Cleveland 5, Ohio—Booth 758

In attendance: H. F. Curtis, A. H. Bechtel, E. F. Steffner, R. E. Brumbaugh, F. J. Butler, D. J. Ruisinger.

Exhibiting: Complete line of registers and grilles for the heating and air conditioning industry.

AURORA PUMP DIV., THE NEW YORK AIR BRAKE CO., 629 Loucks St., Aurora, Ill.—Booths 1155, 1159

Exhibiting: Close coupled and pedestal mount general purpose pumps, condensation return units, boiler feed pumps, circulating pumps, vacuum return systems.

AU-TEMP-CO CORP., DIV. OF HEAT-TIMER CORP., 657 Broadway, New York, N. Y.—Booths 336, 338

In attendance: Albert Fowler, Edward J. Zeitlin, Richard Lassar.

Exhibiting: Motorized valves, electronic controls, oil immersed motors.

AUTO-FLO CORP., 12085 Dixie St., Detroit 39, Mich.—Booth 421

In attendance: Harold Burke, James Miner, Robert Matzen, D. B. Sutherland, Don Mullen, Bernard Magiday, Harold Michelman, P. J. Halter, Victor Vogel, Joe Vogel, E. N. Tipton, Sidney Mizell, Howard A. Weller, Dean P. Rethmeier, Theodore L. Smith, E. J. Towle, Charles Yengst, Harold Goodwin, Alexandria McCall, Morris Chapman, B. L. Rushton, Milton Perlman.

Exhibiting: Automatic humidifier, standard model and king size model oil filters, oil filter cartridges, glass fiber evaporator plates.

AUTOMATIC DEVICES CO., INC., 714 Hillgrove Ave., Western Springs, Ill.—Booth 1032

In attendance: Henry T. Kucera, Robert G. Davis, Eugene Clary, W. W. Thompson, W. Gaskill.

Exhibiting: Automatic "Weather Re-set" time switch, "Weather-Chron" regulator; "Weather-Flo" adjustable indoor-outdoor controllers; newly redesigned "Weather-Man" regulator, outdoor controller for steam heating systems. "Weather-Chron" regulator, a time switch having an outdoor bulb to automatically change the time of switching action from the night thermostat to the day thermostat as outdoor temperatures change, automatically eliminating night set-back in very cold weather and stopping heat flow to the building in preselected high outdoor temperatures (65 F), will be featured.

AUTOMATIC HUMIDIFIER CO., 19th and Main Sts., Cedar Falls, Iowa—Booth 723

In attendance: J. Harold Galloway, Warren G. Seeley.

Exhibiting: "Vaporite" and "Thermo Drip" humidifiers for warm air furnaces.

AVCO—LYCOMING DIV.—see SPENCER HEATER.

AVERY FARM MACHINERY CO.—see HART HEAT DIV.

B-I-F INDUSTRIES, INC., 345 Harris Ave., Providence 1, R. I.—Booths 761, 763

In attendance: S. R. Amylon, F. W. Deutsch, E. R. Franklin, R. H. Glanville, G. H. Jewell, N. Ludman, F. P. Pfeffer, R. H. Poulson, J. B. Sheehan, W. A. Smith, M. H. Strickland, T. V. Voegtli, T. R. Zatkovich.

Exhibiting: "Proportioneer" proportioning pump with "Vane Guide" check valves for adding compounds to boiler feed water to prevent corrosion and scale or for other general fluid proportioning; "Builders Shuntflo" meter for totalizing steam, air or gas flows, of in-line design for lines 4 in. or under, bypass design for lines 5 to 20 in., which can actuate remote secondary indicating/recording instruments or pace proportioning pumps introducing inhibitors, disinfectants, deodorants, etc., to air or gas streams; venturi insert nozzle, a differential producer for metering chilled or condenser water in air conditioning systems, which is mounted between pipe flanges with no drilling or tapping of pipe line necessary. New "Shuntflo" in-line meter for totalizing flow of steam, which is self-contained and self-operated requiring no electrical connections or mercury, and has an entirely new cooling chamber and concentric metering orifice design, will be featured, as will "Proportioneer" model 19130 for feeding concentrated chemicals such as concentrated sulphuric acid for cooling towers direct from shipping containers.

BACHARACH INDUSTRIAL INSTRUMENT CO., 7301 Penn Ave., Pittsburgh 8, Pa.—Booth 671

In attendance: R. Ulrich, J. A. Stein, J. W. Smith, J. V. Palmer.

Exhibiting: "Fyrite" combustion testing kits, "Tempscribe" temperature and operation recorders, "Florite" air velocity meters, "Monoxor" for carbon monoxide detection, gas pressure manometers, filter gages to signal when filters on heating and air conditioning systems need to be changed. Scoop type air velocity meters, temperature recorder for remote readings, "Tempoint" air circulation thermometer, and instrument for CO detection will be featured.

BALTIMORE AIRCOIL CO., INC., Baltimore 3, Md.—Booths 1009, 1011

In attendance: John Engalitcheff, Jr., Ray R. Forseille, W. E. Kahlert, Hugh B. Shepard, George E. Klein, T. F. Facius, L. W. Bookhult.

Exhibiting: New 20 ton blow-through type evaporative condenser, new 20 ton draw-through type cooling tower. Universal evaporative condenser and cooling tower will be featured. Draw-through arrangement "requires

minimum floor space, is generally used for indoor installations." Two pan sections are available, one for attaching ductwork to inlet, the other for minimum height requirements. Blow-through type arrangement "is generally used for outdoor installations although it can be used equally well indoors when the equipment room can be used as a plenum."

BARBER-COLMAN CO., 1300 Rock St., Rockford, Ill.—Booths 711, 715

In attendance: C. J. Braatz, E. A. Greenlee, C. P. Yates, H. H. Kieckhefer, and others.

Exhibiting: Control center, unit ventilator control system, electronic combustion safeguard equipment, electronic multipoint recorder, electronic bulb type indicating and recording thermometers, and all types of air distribution equipment, including high velocity equipment, ceiling diffuser, sidewall diffusers and accessories. Features of exhibit include modern control centers for heating and air conditioning systems; unit ventilator control system with new dual bulb thermostat for uniform control of discharge air temperatures; two new models of electronic combustion safeguard equipment; two models of electronic indicating and recording thermometers; and a new design of an electronic multipoint recorder.

BARBER MFG. CO., THE GAS & OIL BURNER DIV., 1054 E. 134th St., Cleveland 10, Ohio—Booths N-335, N-337

In attendance: Hayden Thompson, Don Daniels, Don Wallace, Jim Williams, Tom Willson.

Exhibiting: Gas burners of various types for heating equipment and appliance manufacturers, including atmospheric inshot gas conversion burners, atmospheric upshot gas conversion burners, impinged jet gas conversion burners. New power gas burners with Btu input from 50,000 to 200,000, incorporating "new principle of gas-air mixture to produce intensely hot gas flame in a confined area" will be featured.

BARNEBEY-CHENEY CO., Cassidy and Eighth Ave., Columbus 19, Ohio — Booth 1046

In attendance: H. L. Barnebey, T. Barnebey, R. L. Trout, W. L. David, D. C. Hall, M. B. Chalfen.

Exhibiting: Activated charcoal air purification equipment — heavy duty "FilterFolds" for public buildings, offices, auditoriums, industrial plants, schools, and hospitals, and used in exhaust systems to prevent atmospheric pollution; self-contained purification units to circulate and purify the air in hospital rooms, restaurants, industrial plants, conference rooms, offices, and homes; new "Dacor" disposable type activated charcoal filter used in air conditioners, forced air furnaces, and ventilating systems. This will be the first showing of the new "Dacor" throw-away type activated charcoal filter at a national heating and air conditioning show.

BARRY BLOWER CO., 3100 California St., N. E. Minneapolis 18, Minn. — Booths 661, 663

In attendance: B. H. Barry, Allen Freidson, Herman Freidson.

Exhibiting: Forwardly curved blower wheels, housings and blowers; backward inclined blower wheels, housings and blowers; utility sets, forwardly curved; multiple forwardly curved blowers. New line of ventilating sets, direct drive and belt driven, and new line of backward inclined blowers will be featured.

BASTIAN-MORLEY CO., INC., 200 Truesdell Ave., LaPorte, Ind. — Booth N-415

In attendance: H. B. Carbon, F. G. Johnson, J. P. Hutchinson, H. J. Morley, R. E. Reynolds, J. Vitale, J. K. Clemens, J. Zylstra.

Exhibiting: Gas-fired boilers, water heaters, incinerators. New "Unipak" gas fired packaged boiler with controls and accessories factory assembled and wired, with net outputs of 72,000 and 99,000 Btu per hr. will be featured.

BAYLEY BLOWER CO., 1817 S. 66th St., Milwaukee 14, Wisc. — Booth 227

In attendance: George E. Szekely, Frank J. Hamilton, Roger C. Olsen, B. M. Kluge, B. F. Mansion, Owen J. Willkomm, Francis J. Wuertl.

Exhibiting: Centrifugal fans, induced draft fan, air washer, blast coils.

BELL & GOSSETT CO., 8200 N. Austin Ave., Morton Grove, Ill. — Booths 1258, 1262, 1266

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE CO., EVANSVILLE DIV., 950 E. Virginia St., Evansville, Ind.—Booth N-301.

In attendance: John R. Morrill, Donald J. Wood, Henry C. Preher, Hugh R. Dunbar, Dennis J. Miller, John W. Downen, William Cissell.

Exhibiting: Hermetic compressors.

BETT-MARR MFG. CO., 621 E. Excelsior Ave., Hopkins, Minn.—Booth 773

In attendance: R. L. Linquist, W. J. Conroy.

Exhibiting: Three wheel band saw, two wheel band saw, 24 in. cheek bender, 12 in. cheek bender. The new 24 in. cheek bender has a trunnion on the open end "to assure perfect bends along the entire length and also keep the bending bar in proper position at the starting point."

BETZ DIV.—see BOHN ALUMINUM & BRASS CORP.

BEVERLY SHEAR MFG. CO., THE, 3004 W. 111th St., Chicago 43, Ill.—Booth N-424

BINKS MFG. CO., 3100 Carroll Ave., Chicago 12, Ill.—Booth 1172

In attendance: C. R. Kranz, A. G. Stacy, Russell Plutz, James Doherty, Jack Miller.

Exhibiting: Cooling towers for business and industry.

BISHOP & BABCOCK MFG. CO., THE, 4901 Hamilton Ave., Cleveland 14, Ohio—Booth 132

In attendance: L. B. Smith, H. K. King, Sam Mullin, Jerry Bruckman, R. F. Doughty.

Exhibiting: Commercial fans and blowers.

BOHN ALUMINUM & BRASS CORP., BETZ DIV., Danville, Ill.—Booths N-225, N-227

In attendance: Frank C. Hawk, Robert L. Hodapp, Robert W. Carvell, Russell E. Keller, Charles B. Simison, David H. Gold, James F. Pierce, Donald J. Jessup, Charles E. McAdoo, David C. Williams, John W. Hudson, D. A. Bunner.

Exhibiting: Low temperature automatic defrost units, air cooled condensers, stud units—air conditioning, furnace bonnet units—air conditioning, finned coils.

BORG-WARNER CORP.—see INGERSOLL CONDITIONED AIR DIV., PRIMOR PRODUCTS DIV., and REFLECTAL CORP.

BOSTON MACHINE WORKS CO., 7 Willow St., Lynn, Mass.—Booth N-427

In attendance: Ralph L. Dennis, I. M. Nelson, H. C. Walters, Tony Torissi.

Exhibiting: "Aphorh True Alignment" nozzles, "Clearview" tank gages, "Boston" combustion head, "Instant-Glo" combustion chambers, chrome steel "Hang-Down" baffles, draft stabilizers, "Ideal" nozzle extractors, "Bosmaco-Aphorh" nozzle service kits, "Wigwam-Thermcaps," "Boston Breese" horizontal burners.

BRANDES CO., 2046 Winnebago, Madison 4, Wisc.—Booth 769

In attendance: E. E. Brandes, Fred Milverstedt, Carl Wetzel.

Exhibiting: Warm air baseboard. New diffuser in 2, 3, 4, 5, 6, and 8 ft lengths with adjustable end and top diffusion, "especially adaptable for cooling as throw and air pattern can

be adjusted for air requirements of each room," will be featured.

BROOKSIDE CORP., McCordsville, Ind.—Booth 1069

In attendance: Claude A. Forth, Sr., Claude A. Forth, Jr., J. Wooden, Dorothy Hamm.

Exhibiting: Power roof exhausters.

BROWN PRODUCTS CORP., 97-12 Metropolitan Ave., Forest Hills, N. Y.—Booths 1020, 1022

In attendance: Jack Aronczyk, Frank Sieffert, Ch. Meehan, James Helminger, James McCarrroll.

Exhibiting: Baseboard (copper tube, aluminum fins, 3/4 in. and 1 in. tubing); finned tube (steel pipe, steel fins); packaged chillers; remote air conditioning units, chilled water systems. Chilled water systems offering automatic two-step cooling including chillers, room units and controls; baseboard using same enclosure used with 3/4 in. and 1 in. elements to cut stocking problems; and complete line of steel and copper finned tube, will be featured.

BRUNDAGE CO., THE, 512 N. Park St., Kalamazoo 11, Mich.—Booth 615

In attendance: H. F. Brundage, F. W. Brundage, L. C. Kroes, W. A. Rockafeld, E. N. Moncrief, G. A. C. Woolley, Jr., D. M. Johnston, Bruce McLouth, Lou Reining.

Exhibiting: Air conditioning and furnace blower line, featuring a performance demonstrator.

BRUNNER MFG. CO., 1821 Broad St., Utica 1, N. Y.—Booths 44, 139, 143

In attendance: A. G. Zumbrun, Sr., L. A. De Marsh, R. G. Albert, J. T. Yates, A. L. Haldeman, L. B. Menard, J. P. Junkin, Sr., J. P. Junkin, Jr., W. C. Roberts, and entire sales force.

Exhibiting: Refrigeration condensing units, both open type and semi-hermetic; refrigeration compressors, both open type and semi-hermetic.

BUENSOD-STACEY, INC., 45 W. 18th St., New York 11, N. Y.—Booth N-314

In attendance: Joe W. Kreutner, A. C. Buensod, M. S. Smith, Norman Vaughn, Ernest Werder, Nicholas Shataloff, R. O. McGary.

Exhibiting: Dual duct air mixing units with automatic volume regulator and related specialties and accessories.

BUFFALO FORGE CO., 490 Broadway, Buffalo 4, N. Y.—Booth 937

In attendance: E. F. Wendt, W. R. Heath, F. B. Stubinger, C. C. Cheyney, J. W. Kippit, R. C. Redmond, C. W. Lockhart, R. Farnham, W. R. Holt, J. E. Gill, R. D. Madison, R. P. Warren, P. B. Campbell, R. S. Lloyd, S. O. Johnson, E. P. Heckel, Jr., G. H. Johnson, R. Jorgensen.

Exhibiting: No. 890 "BLH" double fan, 30 in. "Sky Vent" power roof ventilators, 5 in. "SL" pump, "Shortboy", 21 in. vaneaxial fan, belted vent set, "BL" fan, "LL" fan, 3 in. pump, 2 in. pump, 16 in. spot cooler, 24 in., 16 in. and 12 in. "Breezeo" fans, 12 in. penthouse, 24 in. belt air fan, unit heater, baby vent set, volume fan, exhauster fan. The No. 890 "BLH" double fan has a new design outlet and variable cantilever inlet vanes. The "V" and "H" "Sky Vent" power roof ventilators are suitable for high velocity and high capacity exhaust installations. The model H "Shortboy" exhibited is a new ventilating unit featuring tubular construction with hollow shaft and external bearings. The exhibit will feature a large simulated crate of room size in which will be exhibited a number of package type units. The crate theme is to emphasize the manufacturer's line of products which are stock items and ready for immediate delivery.

BUILDERS-PROVIDENCE, INC.—see B-I-F INDUSTRIES, INC.

BURGESS-MANNING CO., 5970 Northwest Highway, Chicago 31, Ill.—Booth 1040

In attendance: W. C. Kadow, J. Engberg, T. R. Partington.

Exhibiting: Radiant heating, cooling and acoustical ceilings.

BURNHAM CORP., 2 Main St., Irvington, N. Y.—Booths 837, 841

In attendance: V. A. Good, F. R. Brophy, John W. Murray, Jr., D. E. Hawk, J. Roy Knox, Geo. A. Langenberg, Wm. Enochs, John A. Harris, J. Robt. Collier, Glenn W. Hicks.

Exhibiting: "Base-Ray" cast iron radiant baseboards; "Pace-Pak" and "Holiday" packaged oil and gas boilers, respectively; "Pace-King" oil boiler; "Burnham" steel boilers.

BYERS CO., A. M., Pittsburgh, Pa.—Booth 753

CALGON CO., 323 Fourth Ave., Pittsburgh 22, Pa.—Booth N-339

In attendance: C. L. Barksdale, J. D. Crane, H. B. Kivlan, J. L. Connolly, R. D. Gumble, R. D. Baker, E. J. Mohney, W. R. Musser, D. R. Elms.

Exhibiting: "Calgon" scale remover, "Micromet" plates, algacide, "Banox W. T." corrosion inhibitor, boiler water treatment, "Micromet," "Micromet" feeders, "Zeotone," "Banox W. T.," corrosion inhibitor "MD," and boiler water treatment are new products which become available this month.

CALUMET & HECLA, INC.—see **WOLVERINE TUBE**

CAMBRIDGE FILTER CORP., 738 Erie Blvd. East, Syracuse 3, N. Y.—Booth 409

In attendance: David N. Northrup, William W. Baldwin, Paul M. Engle, Robert L. Stoffregen.

Exhibiting: "Absolute" and "Aerosolve" air filters.

CARNES CORP., Verona, Wisc.—Booth 407

In attendance: W. R. Carnes, F. A. Freese, P. L. Engler, G. S. Sylvester, R. L. Whiting, Ed Westbury, F. C. Cameron.

Exhibiting: Power roof ventilators, side wall exhausters, ceiling diffusers, registers and grilles. New line of belt driven centrifugal ventilators, sizes 7 in. through 48 in., and new diffuser adjustable for direction of air patterns on a horizontal plane, will be featured.

CARRIER CORP., 300 S. Geddes St., Syracuse 1, N. Y.—Booths 515, 517, 519

In attendance: Charles Fenn, Hermann Hoffmann, Maurice Wilson, Victor Cole, Vincent Day, Robert White, Gordon Dinger, Howard Finck, Owen Kuhen, Edward Dafter, Al Giannini, Jack White, R. Phillips, R. S. Fullerton, G. Fruchtenicht, Donald Ryan, J. E. Salmon, L. J. Krantz, G. D. Harbin, C. V. Perna, Ted Skoglund, Ken Vaughn, Mike Kane, William Hillen, Pierce Burke, Jack Voigt, A. E. Meling, William Lake, Robert Allen, George Robinson, William Egan, George Long.

Exhibiting: Residential, commercial, and industrial, air conditioning equipment and systems; ice making equipment; refrigeration equipment.

CARVER PUMP CO., Muscatine, Iowa—Booth N-246

CENTURY ELECTRIC CO., 1806 Pine St., St. Louis 3, Mo.—Booth 855

In attendance: G. C. Henderson, W. C. Wetlaufer, A. F. Gerecke, Geo. Smith, Wm. D. Helm, P. F. Williams, R. L. Biller, W. Seneff, L. H. Downing, C. F. Luchsingier, V. G. Cox, Frank E. Nutt, H. McInerney, Geo. Nafe, Jack Bain, Fred Powers.

Exhibiting: New "Industrial Quality" 48 frame motor line, including cutaway models and an up-to-date bulletin covering complete fractional horsepower motor line; permanent

split capacitor motor line as applied to the heating and air conditioning fields; special exhibit unit containing a re-rated integral horsepower motor; demonstration unit showing the way manufacturer's permanent split capacitor motors are designed. Demonstrations of the usage of the motors that are employed in the heating and air conditioning field, especially informative from a designer's point of view, and a demonstration of part winding increment start, will be featured.

CENTURY ENGINEERING CORP., 401 Third St., S.E., Cedar Rapids, Iowa—Booths 825, 829

In attendance: W. S. Moellering, E. W. Johnson, J. Stites, H. C. Sparks, R. F. Considine, Kenneth Gray, B. J. Lattner, Chas. Walker, W. D. Olive, E. J. Mettelka, J. S. Davis, Thos. Donahue.

Exhibiting: Gas furnaces, oil furnaces, air conditioners.

CHACE CO., W. M., 1600 Beard Ave., Detroit 9, Mich.—Booth 1072

CHAMPION BLOWER & FORGE CO., Lancaster, Pa.—Booths 1166, 1168

In attendance: Henry K. Long, William M. Gelvin, Paul K. Martzall, Kenneth M. Peters.

Exhibiting: Fans, blowers, exhausters, "Champion-Haves" acid-resisting exhausters, suitable for high concentrations of most acids and reasonably high temperature, will be featured.

CHAR-GALE MFG. CO., Anoka, Minn.—Booth 873

In attendance: C. L. Johnston, N. J. Dovolis, D. E. Johnston, George Standen, Harley Sippell, George Sprick, George Chenoweth, Jess Bratsch, Joe LaTuff.

Exhibiting: Baseboard and ceiling air diffusers, aluminum and galvanized ducts and fittings, humidifiers, conventional and air conditioning registers, rain goods.

CHELSEA PRODUCTS, INC.—see **POWER-LINE FAN CO.**

CHEMICAL SOLVENT CO., INC., P. O. Box 487, Birmingham, Ala.—Booth 313

In attendance: Noel A. Burke, Jr., Olivia P. Burke, Wm. J. McKeough, Walter E. Evans, Jr., Rudy Wolfe.

Exhibiting: "Solvex" line for cleaning and protecting water cooled refrigeration and air conditioning equipment and wet heating. New 10 lb container for "Ultra Solvex," emphasizing its use to clean heavily scaled water cooled refrigeration and air conditioning systems, and for cleaning boilers and opening sluggish drain lines and hot water systems, will be featured.

CHICAGO BLOWER CORP., 9867 Pacific Ave., Franklin Park, Ill.—Booths 602, 703

CHICAGO PUMP CO., 622 Diversey Parkway, Chicago 14, Ill.—Booth 30

CHICAGO SHOW PRINTING CO., MYSTIK ADHESIVE PRODUCTS DIV., 2635 N. Kil-dare Ave., Chicago 39, Ill.—Booth N-342

CHRYSLER CORP.—see **AIRTEMP DIV.**

CLARAGE FAN CO., Kalamazoo, Mich.—Booths 817, 821

In attendance: S. H. Downs, C. O. Fury, C. R. McConner, N. A. Melzer, R. A. Wasson.

Exhibiting: "Centrilator", new centrifugal type power roof ventilator in operation; fan section and spray section of "Hi-Static Multitherm" unit; ventilation unit (ready to run); "Tru-Sight" remote oiler; "Time NH" ventilating fan. The new centrifugal power roof ventilator with an exclusive "Jet Siphon" feature, said to be uniquely suited to high static

pressure requirements; the new "Hi-Static Multitherm" unit designed principally for high velocity conduit air conditioning systems in multi-story buildings; and the new remote oiling device for fan bearings will be featured.

CLAYTON & LAMBERT MFG. CO., 1701 Dixie Hy., Louisville 10, Ky.—Booth 443

In attendance: Roger Sherwood, Jim Francis, Mal Driever, Brad Tyrrell.

Exhibiting: "Lamneck" prefabricated air distribution pipe and fittings, "Alumilux" water heaters, "C & L" hand torches for LP gas. Four new design fittings and connectors for simplified ductwork installation in remodeling market will be featured.

CLEAVER-BROOKS CO., 326 E. Keefe Ave., Milwaukee 12, Wisc.—Boiler Div., Booths 648, 650. Burner Div., Booth 331

In attendance: Boiler Div.—J. C. Cleaver, R. E. Brooks, H. F. Holtz, F. E. Hainer, W. E. Zunker, W. F. Stoehr, K. K. Hilgendorf. Burner Div.—J. V. Resek, Wm. DeMuth, H. McCoy, H. Fitzpatrick, J. Will.

Exhibiting: "CB 125" 150 hp package boiler; "P 40 Progress" commercial heating package boiler, available in five sizes, the boiler being a complete package.

CLEVELAND HEATER CO.—see **AIR CONTROLS, INC., DIV.**

CLEVELAND STEEL PRODUCTS CORP.—see **TORIDHEET DIV.**

COBRA METAL HOSE DIV., DK MFG. CO., 4640 W. 54th St., Chicago 32, Ill.—Booth 232

In attendance: Paul Fitting, Herbert N. Woodward, Victor Sipovic, Clyde D. Greeno, Tom Quinn.

Exhibiting: Complete new line of flexible metal hose connectors—"Flexnipples," "Flexpipe," and flexible hose assemblies. Pressure hose assemblies used on guided missiles, jet engines and other high pressure applications, and a new liquid oxygen transfer hose will be shown. Buying hose in completed assemblies identified with catalog numbers and individually priced will be featured.

COLEMAN CO., INC., THE, 250 N. St. Francis, Wichita 1, Kans.—Booths 236, 238, 242

In attendance: Leland Ginn, Marshall Fryar, Ed G. Johnson, A. M. Castello, H. W. Morton, A. B. Newton, R. G. Rankin, M. G. Raske.

Exhibiting: Gas water heaters, oil and gas floor furnaces, gas wall heaters, oil furnace (vertical), "Air-Mist" remote air conditioning package, upright and plenum cooling units, air cooled condenser. New "Polar-Pak" air cooled, self-contained central air conditioner; "Trim-Boy" gas fired furnaces (both horizontal and vertical models); and "Vit-Rock" gas water heaters will be featured.

COLUMBIA BURNER CO., 729 Ewing St., Toledo 7, Ohio—Booth 1259

In attendance: Arnold A. Muenzer, Joseph F. Capoun.

Exhibiting: Gas and oil furnaces, air conditioning, gas conversion burners.

COMBUSTION CONTROL DIV., ELECTRONICS CORP. OF AMERICA, 77 Broadway, Cambridge 42, Mass.—Booth 1238

In attendance: L. D. Sibley, P. K. Ryder, J. G. A. Mitchell, W. S. Tallon, E. F. Hall, H. Christiansen, H. M. Ebert, T. Moberley, V. Kuellmer.

Exhibiting: New "Fireye" panel control systems for automatic burners and new "Fireye" safety interlock systems for semi-automatic and manual burners. Controls for burning fuel safely "to protect life and property from the hazard of flame failure explosion, whenever fuel is burned for power, process, or heating," will be featured.

COMMERCIAL FILTERS CORP., 2 Main St., Melrose, Mass.—Booths 1124, 1126

In attendance: H. A. Wilson, P. R. Matavers, J. R. Chisholm, R. L. Fielding, Jack Berg, R. Olson, H. L. McNally.

Exhibiting: "Fulfo" oil burner filter; "Honeycomb" filter tubes—refill elements for "Fulfo" filters. Large filters for tank trucks and truck loading platforms will be featured.

COMMERCIAL REFRIGERATION & AIR CONDITIONING, 812 Huron Rd., Cleveland 15, Ohio—Booth 741

Exhibiting: Publication.

COMMITTEE ON STEEL PIPE RESEARCH, AMERICAN IRON AND STEEL INSTITUTE, 150 E. 42nd St., New York 17, N. Y.—Booth 1006

In attendance: G. D. Lain, research engineer for the Committee, and assigned representatives of sponsors.

Exhibiting: The display will illustrate some of the uses of steel pipe.

CONCO ENGINEERING WORKS, HEATING & AIR CONDITIONING DIV., Mendota, Ill.—Booth 1214

In attendance: J. W. Burch, J. T. Wells, H. C. Galleher, Phil Abele, A. K. Boone, R. W. Corbett, O. Henry, J. A. Howarth, Wm. Momen, L. A. Page, E. A. Phillips.

Exhibiting: Residential heating and air conditioning units, with special attention given to new 110,000 Btu output low-bay furnace and new "Modulus" unit, which employs face and bypass dampers for residential application in both heating and summer air conditioning.

CONDENSATION ENGINEERING CORP., 3511 W. Potomac Ave., Chicago 51, Ill.—Booth 221

In attendance: B. A. Johnson, Wayne Limbert, Bill Newton, Blake St. Clair, Otto Zeman, Walt Aschliman, Tom Jones, Bob Wasson.

Exhibiting: "Vitroliner" prefabricated chimneys and chimney lining pipe.

CONKEY & CO., H. D.—see FIELD CONTROL DIV.

CONNOR ENGINEERING CORP., Shelter Rock Lane, Danbury, Conn.—Booth 142

In attendance: Henry A. Baker, Peter Arcantieri, Harold H. Todd, Jr., Henry J. Couch, Philip Terrill.

Exhibiting: Complete lines of commercial round and square type diffusers, high pressure diffusers and equipment, "Dorex" air improver equipment, residential "Kno-Draft" diffusers.

CONTINENTAL AIR FILTERS, INC., P. O. Box 1647 (2520 Helm St.), Louisville 1, Ky.—Booth 1133

In attendance: Wm. K. Gregory, John A. Taylor, Frank B. Johnston, Sidney S. Emison, L. P. Bryant, Robert Hoover, R. A. Durham, Willis Veirs, Arthur Klein, E. A. McVeety, Robert Snider.

Exhibiting: Air filters.

CONTRACTOR, THE, Grand Central Terminal Bldg., New York 17, N. Y.—Booth 1227

Exhibiting: Publication

CONTROLS CORP. OF AMERICA—see A-P CONTROLS DIV. and MILWAUKEE VALVE CO.

COOK CO., LOREN, THE, 227 Depot St., Berea, Ohio—Booth 112

In attendance: Loren Cook, Robert E. Marshall, Emil Rudy, Fred W. Starn, Thomas B. McKelvey.

Exhibiting: Spun aluminum roof and wall ventilator.

COPELAND REFRIGERATION CORP., Sidney, Ohio—Booths 1220, 1224

In attendance: Frank J. Gleason, W. G. Von Meyer, Rudy Berg, James Barker, A. E. Cadwell, Hugh Smart, F. E. Jernberg, T. J. Small, J. L. Zant, Bert Kaple.

Exhibiting: Condensing units, motor-compressors and compressors. New compact "Copelametic" and "Copelaweld" motor-compressors will be featured.

CORLEY CO., INC., THE, Plainville, Conn.—Booth 114

CORMARK DISTRIBUTORS, 5147 W. Diversey Ave., Chicago 9, Ill.—Booth N-217

CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill.—Booths 33, 37

In attendance: 72 heating experts.

Exhibiting: Complete line of hot water and warm air heating equipment, as well as air conditioning systems. Exhibit will also include a nation-wide weather map, overlaid on the manufacturer's distribution system, and a central lounge area. "Sunnyday" boilers for residential heating, guaranteed for 20 years, including No. 13 with new boiler jacket, will be among the products featured.

CRIBBEN & SEXTON CO., 700 N. Sacramento Blvd., Chicago 12, Ill.—Booth 138

CRISE CONTROLS DIV., ACRO MFG. CO., THE, 2040 E. Main St., Columbus 16, Ohio—Booth 1008

CURTIS MFG. CO., REFRIGERATION DIV., 1905 Kienlen Ave., St. Louis 20, Mo.—Booths 748, 750, 849, 851

In attendance: H. C. Morrison, H. J. Nettler, F. J. Hanley, K. T. Rockey, Wm. P. Moeller, R. J. Allen, W. Smallwood, A. M. Bono.

Exhibiting: Packaged air conditioners (1-6 ton size and 1-40 ton size); packaged water chillers (1-40 ton size); condensing unit (30 ton size); air cooled residential condensing units (5 and 7½ hp sizes). New packaged air conditioners from 20 through 30 hp, and 7½ hp air cooled condensing units, primarily for residential cooling, will be featured.

CUSTOM INDUSTRIES MFG., INC., 1406 Parkman Rd., Warren, Ohio—Booth N-237

In attendance: Norman H. Mullett, James Purdy.

Exhibiting: Upshot and inshot gas conversion burners.

CUTLER-HAMMER, INC., 315 N. 12th St., Milwaukee, Wisc.—Booth 740

In attendance: K. M. Nelson, B. M. Horter, Jr., J. S. Trudgeon, M. J. Schwab, R. W. Thomas, H. E. Johnson, B. H. Chamberlin, R. G. Martinson, D. C. McIntosh, E. L. Singler, G. I. Wolff, C. W. Greenman, P. L. Erickson, W. R. Hileman.

Exhibiting: Refrigeration control, magnetic starters, manual starters, safety switches, push-button stations and allied electrical equipment. "Roto-Push" and "Pres-Test" push-button units will be featured, the first combining functions of single button station with advantages of two or three position selector switch in one unit, and the second providing a simple means of checking indicating lights without disturbing control circuit or removing lens or bulb.

CYCLOTHERM DIV., NATIONAL-U.S. RADIATOR CORP., 157 E. 1st St., Oswego, N. Y.—Booth 551

DK MFG. CO.—see COBRA METAL HOSE DIV.

DAVIDSON FAN CO., 213 California St., Newton, Mass.—Booth 1116

In attendance: Edward F. Patterson, John F. Snow, Raymond E. Mabey, F. E. Coolidge.

Exhibiting: Roof fans.

DeBOTHEZAT FANS DIV., AMERICAN MACHINE AND METALS, INC., East Moline, Ill.—Booths 239, 243

In attendance: Alonzo M. Harp; R. Bouslough; R. L. Hull; and representatives—Augur, Jones & Green; Fred S. Bailey; E. J. Becker Co.; A. C. Beckert; Grant E. Beverly Co.; Bratton Sales Engineers; Warren Bruce & Co.; A. H. Burnap, Bushnell Machinery Co.; C & S. Equipment Co.; Paul A. Chapman & Associates; J. W. Cherry Co.; L. F. Church Co.; Coward-Eastman Co.; H. M. Curfman Co.; Deco Engineering Products; DeHaas & Mitchell; Douglas Engineering Co.; Engineering Products Co.; Flinn Engineering Co.; A. A. Gould & Co.; Hairston and Co.; James A. Harwell; Allan E. Hause Co.; Irving R. Kahn; Hubert Kaub & Co.; Lancaster, May & Co.; E. H. Langdon Co.; Loeffler-Greene Supply Co.; Marshall, Neil & Pauley, Inc.; Robert E. Mason Co.; Geo. R. Mellema Co.; H. W. McKenzie; Neff Engineering Co.; Paller Engineering Co.; J. M. Pettingill Associates; Sales Engineering Co., Inc.; Laurence Trant & Co.; Wallin Engineering Sales Co.; Harry Wright, Jr.; Wright Engineering Co.; State Equipment Co.

Exhibiting: Centrifugal roof ventilators, "Power-Flow" roof ventilator, vertical discharge roof ventilator, "Bifurcators", induced draft "Bifurcator", fan wheels. Centrifugal roof ventilator, produced for the first time in 1956, "with low silhouette and profiled to complement modern architecture and building construction," will be featured. It is available in 10 sizes with capacities from 1500 through 33,000 cfm.

DELAVAN MFG. CO., #11 Fourth St., West Des Moines, Iowa—Booth 1217

In attendance: D. T. Morgenthaler, R. E. Keene, Fred Mulcahy, Wm. B. Spargur, Lee N. Beardsley, Wm. J. Thurston, A. K. Johnson, Leonard Janssen, William Hunsicker.

Exhibiting: Nozzles and accessories; nozzle tools; nozzle racks; industrial nozzles for air conditioning; nozzle boxes; adapters, strainers, filters; nozzle kits for servicemen. New "48" nozzle box and new informative literature for servicemen will be featured.

DELCO PRODUCTS DIV. OF GENERAL MOTORS CORP., 329 E. 1st St., Dayton 1, Ohio—Booth 1216

In attendance: J. R. Lakin, R. O. Dehlendorf, M. E. Rasper, C. L. Holverstott, B. E. Charlesworth, G. C. Rohling, R. K. Eley, D. K. Tippy, I. J. Towns, J. R. Perkins, G. C. Tillotson, C. R. Knowlton, C. B. Lee, J. F. Howe, R. C. Anderson, J. W. Brumley, G. B. Liszak, H. C. Woodsum, J. D. Hughes, J. F. Rutter, L. C. Bond, R. B. Edgar, L. H. Shue, W. J. Manker, W. M. Stockstill, K. E. Leighty, and others.

Exhibiting: Electric motors and controllers, including hermetic motors, single phase and polyphase; motors for direct and belt driven applications, including shaded pole, extended wind, permanent split capacitor, split phase, capacitor start, polyphase; relays, capacitors and controllers. Inside-outside motor will be featured.

DELTA HEATING CORP., Cole St. at Reading RR, Trenton 8, N. J.—Booth 950

DETROIT CONTROLS CORP., 5900 Trumbull Ave., Detroit 8, Mich.—Booths 21, 220

DIEHL MFG. CO., Findern Ave., Somerville, N. J.—Booth 433

In attendance: A. R. Booth, D. P. Griggs, E. Lindberg, Jr., F. A. Yates, J. E. Ryan, J. E. Ramsay, C. H. Smith.

Exhibiting: Ventilating and exhaust fans, electric motors.

DIELECTRIC PRODUCTS CO., INC., 125 Virginia Ave., Jersey City 5, N. J.—Booth 530

In attendance: Henry T. Carey, Phil Krueger, Leon F. DeNicola.

Exhibiting: Ignition electrode assemblies for domestic, industrial and commercial oil heating equipment; assemblies of special design for oil- and gas-fired boilers and ovens.

DI MACHINE CORP., 2711 W. Irving Park Rd., Chicago 18, Ill.—Booth N-332

In attendance: Wm. Diebel, F. B. Hermann.
Exhibiting: "Diebel" automatic fin presses and fin dies, installation photographs and fin samples.

DODGE CORP., F. W., 119 W. 40th St., New York 18, N. Y.—Booth 201

Exhibiting: Reports on new construction for use in selling; publication.

DOERR ELECTRIC CORP., Cedarburg, Wisc.—Booth 561

In attendance: J. H. Park, G. L. Kunick, L. A. Doerr, Emmett Doerr, H. E. Ellis, W. F. Boerger, Karl Blind.

Exhibiting: Motors of both standard and special designs for use on pumps and other equipment associated with the air conditioning, heating and ventilating fields.

DOLE REFRIGERATING CO., 5910 N. Pulaski Rd., Chicago 31, Ill.—Booth 233

In attendance: A. B. Brady, H. W. DeBaugh, L. E. Gustafson, C. B. Leonhardt, C. J. Tesar, B. P. Tweed, H. P. Hansen, W. C. Mueller, O. L. Rose, J. E. Hutchinson, W. E. Lauterbach.

Exhibiting: "Ice-Cels" (latent heat ice storage systems for air conditioning). Chilled water air conditioning systems for churches, theaters, mortuaries, tourist courts or other applications that have a peak load for a short duration will be featured.

DOLE VALVE CO., THE, 1933 Carroll Ave., Chicago 12, Ill.—Booths 725, 727

In attendance: Will Pennington, Henry Aronson, William Wallin, Stuart Phillips, J. F. Lund.

Exhibiting: Air valves, vacuum valves, flow controls, relief valves, automatic warm air registers, shower controls, water mixers, chamber vents, faucet controls, flush tank fillers, "Salesmakers" display panel. Water mixer, relief valve, "Salesmaker" and shower control will be featured.

DOMESTIC ENGINEERING, 1801 Prairie Ave., Chicago 16, Ill.—Booths 518, 520

Exhibiting: Publication.

DONGAN ELECTRIC MFG. CO., 2987 Franklin St., Detroit 7, Mich.—Booth N-408

In attendance: Charles E. Hicks, Lawrence P. Murphy, James B. Evans.

Exhibiting: Replacement ignition transformers for industrial and domestic oil burners for servicing more than 2000 different models of burners with 10 basic transformers and 23 interchangeable mounting plates. New series of "buck and boost" transformers, designed to increase voltages from under-voltage circuits to normal, will be announced. The same transformer will also reduce (buck) line voltage by the same percentage.

DOVER MFG. CO., 3117 Weatherford Ave., Independence, Mo.—Booth N-343

In attendance: J. F. Pritchard, Jr., J. T. Reed, Jr.

Exhibiting: Natural and mechanical draft water cooling towers.

DOWNING STEEL PRODUCTS CO., 2305 S. Smithville Rd., Dayton 10, Ohio—Booth N-436

In attendance: J. M. Downing, Louis Thie.

Exhibiting: "Super-Jet" gas conversion burner.

DOYLE VACUUM CLEANER CO., 225 Stevens St., S.W., Grand Rapids 2, Mich.—Booth 739

In attendance: Clifford Kennedy, Walter B. Fitzgerald, Jack Fox.

Exhibiting: Vacuum cleaners and attachments.

DRAVO CORP., Dravo Bldg., Pittsburgh 22, Pa.—Booths 867, 869

DRAVER-HANSON DIV., NATIONAL-U.S. RADIATOR CORP., 3301 Bedford St., Los Angeles 63, Calif.—Booth 811

DREIS & KRUMP MFG. CO., 7400 S. Loomis Blvd., Chicago 36, Ill.—Booth N-417

In attendance: John H. Byrnes, A. J. DeWolf, Frank McNerney, Dick Johnson, Nick Gron, Birger Borgerson, Vinc. A. Bellick, Albert Muranko, Bert Guinec.

Exhibiting: Samples of press brake dies and photos and parts to show the applications of "Chicago" press brakes to the forming and bending of sheet metal used in heating and air conditioning systems, units, and items.

DRYER ELECTRIC CORP., 111 Bedford Ave., Brooklyn 11, N. Y.—Booth 566

DRYOMATIC CORP., 806 N. Fairfax St., Alexandria, Va.—Booth 208

In attendance: Anthony Hass, Walter W. Bolton, Kirk L. Burns, David L. Watson, Norman L. Pearson, Ray Young, C. David Grinnell.

Exhibiting: Dehumidifiers and humidity control systems. Model 105 space dehumidifier for building volumes up to 35,000 cu ft will be shown for the first time.

DUNHAM-BUSH, INC., 179 South St., West Hartford 10, Conn.—Booths 910, 1244, 1248, 1250

In attendance: C. Boling, J. A. Mulcahey, W. S. Browning, R. B. Lennox, C. T. Cavanaugh, G. J. Finck, J. K. Campbell, C. W. Gaebel, A. A. Lincoln, D. W. O'Brien, O. M. Butler, D. G. Zakorian, E. L. Disbrow, J. F. Wasson, H. J. Bolhouse, A. R. Kaminsky, J. G. Herrmann, N. F. Sorgenfrei, J. S. Gregory, J. Mayor, A. S. Decker, E. M. Flannery, A. E. Keeler, E. Wertz, L. Foster, R. Frier, D. B. Stockdale, R. E. Sweeney, D. M. Fairbairn, C. Silva, A. J. Hesmer, C. P. Finke, R. M. Mitchell, M. McLacklin, L. Smith, A. J. Dickey, A. R. Treveiler, P. R. Schaffer, G. A. Mansinger.

Exhibiting: Air conditioning units and equipment; heating controls, systems, and units; water chillers and heat exchangers for air conditioning units. New "CR-Conditioners" heating and cooling units for hotels, apartments, and residences; and new small residential package chillers for cooling water in residential air conditioning systems, will be featured.

du PONT de NEMOURS & CO., INC., E. I., Wilmington 98, Dela.—Booth N-242

In attendance: J. C. Hoopes, N. W. Kent, S. R. Richardson, J. O. Wright, Jr., F. H. Fryer, W. H. Brown, Jr., D. C. McSorley, F. J. Steigerwald.

Exhibiting: "Freon" fluorinated hydrocarbon refrigerants.

DURANT INSULATED PIPE CO., P. O. Box 88, Palo Alto, Calif.—Booth 234

In attendance: William H. Buck, Anthony Oswald, Roger Clawson.

Exhibiting: Prefabricated, insulated pipe.

DURO DYNE CORP., 800 Third Ave., New Hyde Park, N. Y.—Booths 540, 542

In attendance: Martin M. Gracer, Milton Hinden, Arthur K. Marshall.

Exhibiting: "Duro Blade" kit, "Duro Metal Fab", "Duro Vane" rail, damper regulators and quadrants, "Greyhound" portable spot welder, metal punch machines, "Shur-Grip" file and solder iron handles. "Junior" flexible connector and insulation adhesive will be featured.

DWYER MFG. CO., F. W., P. O. Box 373, Michigan City, Ind.—Booth 1010

In attendance: J. G. Dwyer, F. W. Dwyer.

Exhibiting: Draft gages, manometers, pitot tubes, air velocity meters, air filter gages, combustion test sets.

ECKHART MFG. CO., INC., 931 Lehigh Ave., Union, N. J.—Booth 637

In attendance: Arnold Eckhart, Sr., Arnold Eckhart, Jr., Walter E. Eckhart, Geo. Lill, Fred W. Norman, Owen Rebbie, Harold Wolf.

Exhibiting: Complete line of "Korth" oil burners and featuring new improved "Shell Head" oil burners in capacities 0.75 to 1.65 gph and 1.65 to 3.0 gph.

EDDINGTON METAL SPECIALTY CO., Bristol Pike, Eddington, Pa.—Booths 1028, 1030

In attendance: Stanley Czarnecki, Walter V. Czarnecki, Casimer M. Czarnecki, Wesley Czarnecki, Charles B. Wells, Stanley Czarnecki, Jr.

Exhibiting: Nozzles, filters, stabilizers, combustion heads, air cones, strainers, inspection mirrors, servicemen's kits, pressure regulating valves. Condensate disposal pumps will be featured.

EDWARDS ENGINEERING CORP., 101 Alexander Ave., Pompton Plains, N. J.—Booth 966

EJAY BASEBOARD MFG. CO., 124 Boyd St., Winsted, Conn.—Booth 972

In attendance: Edward J. Fitzgerald, Hope S. Fitzgerald.

Exhibiting: "Ejay" baseboard heating systems and remote heating and cooling unit. New combination heating and cooling unit will be introduced.

ELECTRIC BOAT DIV., OF GENERAL DYNAMICS CORP., Groton, Conn.—Booth 309

ELECTRIC HEAT & AIR CONDITIONING, 2 W. 45th St., New York 36, N. Y.—Booth 948

Exhibiting: Publication.

ELECTRO-AIR CLEANER CO., 1285 Reedsdale St., Pittsburgh 33, Pa.—Booth 702

In attendance: P. W. Aitkenhead, R. C. Aitkenhead, D. J. Conroy, J. J. Deutsch, E. L. Baysek, Robert Ruhlman, W. F. McClintock, J. Woznichak.

Exhibiting: Electronic air cleaners and oil mist and smoke precipitators—"Compact Line" electrostatic air cleaning units; "Custom Line" unit; "Built-up Line" unit; single circuit display; black light display.

ELECTRO DYNAMIC DIV. OF GENERAL DYNAMICS CORP., 163 Avenue A, Bayonne, N. J.—Booth N-435

In attendance: Dean W. Paul, Wm. L. Farmer, George Douglass, Zenon J. Raczkowski, Wm. Murphy.

Exhibiting: A-c electric motors from 1 to 300 hp, drip-proof; totally enclosed, fan cooled, and explosionproof motors. New improved related frames and large ribbed type construction explosionproof motors "for effective and efficient cooling" will be featured.

ELECTRONICS CORP. OF AMERICA—see COMBUSTION CONTROL DIV.

ELGEN MFG. CORP., 41-34 39th St., Long Island City 4, N. Y.—Booths 872, 874

In attendance: Louis Josephson, John J. Wyle, Morris Goldsmith, Bruno Perlin, Bruno Speiser, Albert Josephson, Arthur J. Simpson.

Exhibiting: "Silent Duct" flexible duct connector, "Damperet" damper hardware, "All-tite" vane runner for turning vanes.

EMBASSY STEEL PRODUCTS, INC., 890 Stanley Ave., Brooklyn 8, N. Y.—Booth N-325

In attendance: A. J. Polakoff, Elliott S. Nelson, Irwin B. Nelson, Selwyn E. Farber, Sam Lane, Floyd Merryman, Bernard Socin, Dale Ravenscroft, Harry Barker, Larry Stafford, William Kittridge, Lewis Davidson, Robert C. Sweiger.

Exhibiting: Convectors, baseboard radiation, steel fin tube, steel boilers, combination air conditioning and heating surface for the heating and cooling industries. A combination convector and self contained air conditioner for providing air conditioning with wet heat in $\frac{1}{2}$, $\frac{3}{4}$ and 1 ton capacities, the convector and element being manufactured by Embassy to fit the self contained air conditioner manufactured by others, will be featured.

EMERSON ELECTRIC MFG. CO., THE, 8100 Florissant Ave., St. Louis 21, Mo.—Booths 1261, 1263, 1265, 1267

EMPIRE CHEMICAL PRODUCTS CO., 10 Longworth St., Newark 2, N. J.—Booth 446

ENGEL SHEET METAL EQUIPMENT, INC., 8122 Reilly Ave., St. Louis 11, Mo.—Booths 101, 102

In attendance: C. F. Engel, Joseph R. Yoch, William Tanner, Louis Ranch, O. H. Wolters, Richard Taylor, Sherman Torkelson, Joe Pendino.

Exhibiting: "Duct Master," "Shopmaster," "Edge Master" flanger and open end flanger.

EQUIPCO, INC., 1238 N. W. Glisan St., Portland 9, Ore.—Booth N-235

In attendance: L. H. Nichols, L. H. Kurtz, G. L. Tandy.

Exhibiting: "Ascot" gas fired boiler, "Ascot" instantaneous water heater, "Thermorad" convactor. The boiler, introduced during 1956, will be featured.

EUREKA WILLIAMS CORP., WILLIAMS DIV., 1201 E. Bell St., Bloomington, Ill.—Booths 330, 332, 334

In attendance: J. M. Gleason, C. G. Branch, T. H. Green, B. F. Mills, V. A. Krouse, H. C. Perry, W. R. Seeger.

Exhibiting: Oil and gas fired heating equipment and air conditioning units. New gas and oil units plus expanded air conditioning units will be featured.

EVANS CORP., GEORGE, THE, 121 37th St., Moline, Ill.—Booths 333, 335

In attendance: Frank L. Myers, Dick Evans, Howard C. Easter, William J. Henderson.

Exhibiting: "Lifelong" air filter, "Lifelong" grease filter, air filter frame of extruded aluminum.

EXCELSIOR STEEL FURNACE CO., THE, 546 W. Washington Blvd., Chicago 6, Ill.—Booth 631

In attendance: J. S. McDonald, Irving Brex, Robert Clement, C. M. Blodgett, C. R. Overley, Everett Brex, C. E. Owen, P. M. Crowley, Warren Schultz, Sam Berman, Everett Johnson, Elmer Jaroch, James Mangrum.

Exhibiting: Prefabricated air distribution pipe, ducts and fittings in snap lock and click lock types for heating and cooling installations.

FARR CO., P. O. 45187, Airport Station, Los Angeles 45, Calif.—Booth 506

In attendance: R. S. Farr, M. S. Farr, G. R. Holtz, F. X. Shea, F. A. Doody, H. Robson, F. Richardson, K. DeBaun.

Exhibiting: "Far-Air" filters, "Roll-Kleen" automatic dry type filter, after filter and high/low velocity filter will be featured.

FASCO INDUSTRIES, INC., 255 N. Union St., Rochester 2, N. Y.—Booth 736

In attendance: H. M. Sylvester, D. R. Schroedel, C. A. Button, J. M. Nolan, P. R. Reid, N. G. Polydoris, E. J. Dworetzky, W. A. MacDougall, R. E. Waffle, L. P. Doty, W. N. Agnew, P. M. Mock.

Exhibiting: Complete line of shaded pole and permanent split capacitor motors, two, four and six pole, rated 1/500 to 1/4 hp; centrifugal blowers rated from 15 to 275 cfm. Shaded pole motor, six pole, 5 9/16 in. diameter, maximum hp rating 3/4; shaded pole four pole motor, 4 7/16 in. diameter, maximum hp rating 1/16; and new small two pole motor will be featured.

FEDDERS-QUIGAN CORP., Trenton 7, N. J.—Booth 914

In attendance: T. L. Arnold, J. E. Woodworth, H. Boxer, N. Weinstein, J. P. Divizio.

Exhibiting: Hot water and steam radiation, unit heaters, remote heating and cooling units, self-contained cooling units. Two and three ton "Adaptomatic" air conditioner for installation in attic or basement with air cooled condenser will be featured.

FEDERAL BOILER CO., INC., Granite & West Sts., Midland Park, N. J.—Booth 11

In attendance: Raymond H. Bohr, Robert McTaggart, James H. Legg, Walter Gamble, Roy M. Rathe, Herb Klaw, Charles Lowrey, Charles Cavanagh, Geo. McGrath, W. Leetch, Paul Stack, Earl P. Long, Harold Enyeart.

Exhibiting: "FPK" and "VGF-A-PK" boilers and "FBC" baseboard.

FEE & MASON MFG. CO., INC., 21 Wyckoff Ave., Manasquan, N. J.—Booth 108

In attendance: Charles Friedel, Thomas W. Mason, Walter Schlamp, Harry L. Jonathan.

Exhibiting: Pipe suspension equipment and accessories; spring hangers.

FIELD CONTROL DIV. OF H. D. CONKEY & CO., Mendota, Ill.—Booth 554

In attendance: H. J. Potter, Henry Remsberg, C. W. Potter, E. A. Field, Ben Hochstatter, George Peterson, Wayne Davis, Fay Kinne, Paul Jett, Roy Johnson, Fred McGee, R. J. Milholland, W. F. Hirsch, John Sandberg, J. R. Starnes, Howard Waff, Ray Westlund, Theodore Smith, John Elder, Charles Elder, B. A. Johnson.

Exhibiting: Barometric draft controls and double acting gas controls. New industrial and commercial combination oil and gas controls will be featured.

FLEXIBLE TUBING CORP., Guilford, Conn.—Booth N-302

In attendance: Frederick K. Daggett, Howard W. James, Wesley L. Guiles, John R. Shrewsbury.

Exhibiting: "Thermaflex" flexible ducting designed specifically for connections between main ducts and sound boxes and diffusers in both high and low pressure air conditioning systems, will be featured. "Flex-Vent" kits for outdoor venting of automatic clothes dryers, to overcome difficulties in air conditioning kitchens and utility rooms where moisture and heat producing appliances are used will also be shown.

FLEXONICS CORP., 1315 S. Third Ave., Maywood, Ill.—Booth 1107

In attendance: J. F. P. Farrar, T. K. Wells, E. L. Hiter, E. W. Driedger, F. J. Rupp, W. C. Gage, R. M. Quick, L. R. Taylor, L. J. Cullen, W. R. McDorman, I. H. Wallace, E. C. Langille.

Exhibiting: "Flexon" expansion joints, compensators, and flexible metal hose.

FLINTKOTE CO., THE — see VAN-PACKER CO.

FOOD MACHINERY AND CHEMICAL CORP., PEERLESS PUMP DIV., 2005 Northwestern Ave., Indianapolis, Ind.—Booth 1219

FOREST CITY FOUNDRIES CO., THE—see NIAGARA FURNACE DIV.

FRASER & JOHNSTON CO., 1900 17th St., San Francisco 3, Calif.—Booths N-226, N-228

In attendance: W. H. Johnston, G. H. Cardiff, E. A. Easton, I. S. Fairbanks, E. M. Brickley, L. Ramos, Ed. De Voe, Hal Bissel.

Exhibiting: Gas warm air furnaces "of all types for central heating and air conditioning," air cooled condensing units, matching evaporator assemblies to fit exhibitor's furnaces.

FREEMAN HEATING DIV. — see ILLINOIS IRON & BOLT CO.

FRICK CO., W. Main St., Waynesboro, Pa.—Booth 1017

In attendance: P. H. Buch, C. C. Smith, M. B. Watts, W. O. Kline, R. M. Shuford.

Exhibiting: Four cylinder "Eclipse" cut-away compressor, 7 1/2 hp unit air conditioner, new ceiling-type evaporative condenser, models of spiral finned coil and "Prestfin" coil.

FRIGIDAIRE DIV., GENERAL MOTORS CORP., Dayton 1, Ohio—Booth 29

In attendance: B. C. Wagner, W. H. Winn, R. S. McCool, R. F. Johnson, H. F. Harter, and others.

Exhibiting: Low-boy oil furnace, vertical and horizontal oil furnaces, vertical and horizontal gas furnaces, low-boy gas furnace, reverse flow gas furnace mounted on a cooling coil, remote coil blower, air cooled condensing unit, "Master-matic" air conditioner, "Multi-matic" air conditioner, horizontal cooling coil with simulated hook-up with a furnace, room air conditioners, and water cooler in operation for convenience of guests. One of the vertical gas furnaces will be displayed in a simulated hook-up with a condensing unit and cooling coil, with the blower operating. Another vertical gas furnace will be cut-away to show its construction and explain its operation.

FUELOIL & OIL HEAT, 2 W. 45th St., New York 36, N. Y.—Booth 948

Exhibiting: Publication.

FULTON SYLPHON DIV.—see ROBERT-SHAW-FULTON CONTROLS CO.

FURNAS ELECTRIC CO., 1000 McKee St., Batavia, Ill.—Booth 231

In attendance: W. C. Furnas, W. F. Lisman, J. B. Blass, J. M. O'Rourke, C. F. Witschonge, E. A. Parmann, H. L. DeKeyser, L. B. Dungey, H. Bruno, R. E. Baur, F. H. Thiedig, G. Smardon, P. Geiger.

Exhibiting: Electric motor controls, including magnetic starters and contactors, pushbuttons, drum controllers, pressure switches and drum controllers, pressure switches and pilot devices. New air conditioning and refrigeration controls offering four control sizes, 20-30-35-50 amperes, with silver cadmium oxide contacts for long control life, magnets requiring less watts to reduce transformer sizes and thermostat contact load, and in which each pole carries full current so that poles are not connected in parallel, will be featured.

GALLAHER CO., THE, 4108 Dodge St., Omaha, Nebr.—Booth 317

In attendance: I. I. Solzman, George Linge, Fred Balzer, V. P. Hansen, R. E. Burden, R. D. Holland.

Exhibiting: "Air-Van" roof ventilators, both direct drive and belt drive.

GANNON CO., INC., THE RUSSELL R., 5535 Vine St., Cincinnati 16, Ohio—Booths 1162, 1164

GAS HEAT, 2 W. 45th St., New York 36, N. Y.—Booth 948

Exhibiting: Publication.

GENERAL AIR CONDITIONING CORP., 4542 E. Dunham St., Los Angeles 23, Calif.—Booth 324

In attendance: J. E. Kercheval, J. L. Paulus, Warren Speyer.

Exhibiting: Residential and commercial air conditioners for heating and cooling; 2, 3 and 5 ton heat pumps.

GENERAL BLOWER CO., 8618 Ferris Ave., Morton Grove, Ill.—Booth 632

In attendance: R. P. Scott, Wm. W. Meyer, C. Obie, John Kassel, H. R. Johnston, C. N. Shaw, C. L. Kush.

Exhibiting: Centrifugal fans, industrial fans (material handling), and turbo pressure fans. New "Perfect Circle" turbo design, and newly designed line of industrial fans with three different types of wheels, will be featured.

GENERAL CHEMICAL DIV., ALLIED CHEMICAL & DYE CORP., 40 Rector St., New York 6, N. Y.—Booth 147

In attendance: H. L. Robbins, J. J. Tomlinson, H. C. Burkl, J. C. Woyahn, C. B. Price, R. A. Witzig, W. G. Webster.

Exhibiting: "Genetron Super Dry" refrigerants.

GENERAL CONTROLS CO., 801 Allen Ave., Glendale 1, Calif.—Booth 714

In attendance: J. F. Ray, F. E. Weldon, J. A. Wolff, S. B. Ladd, B. L. Lerch.

Exhibiting: Automatic controls for heating, cooling, and air conditioning equipment, and combustion controls and industrial instruments for commercial heating equipment, including room thermostats, solenoid valves, motor operated valves, oil burner controls, and combustion safety devices. New room thermostat "in modern styling, with slim silhouette and horizontal look" for heating, cooling and combination (air conditioning) application will be featured.

GENERAL DYNAMICS CORP. — see ELECTRO-DYNAMIC DIV. and ELECTRIC BOAT DIV.

GENERAL ELECTRIC CO., APPARATUS SALES DEPT., 1 River Rd., Schenectady 5, N. Y.—Booth 39

In attendance: C. J. Ossenfort.

Exhibiting: General purpose fractional motors, specialty component motors, capacitors, heating controls, general purpose control, leak detection equipment.

GENERAL ELECTRIC COMMERCIAL & INDUSTRIAL AIR CONDITIONING DEPT., 5 Lawrence St., Bloomfield, N. J.—Booth 932

In attendance: C. B. Ramsdell, E. R. Pierce, R. A. Sestero, R. D. Roley, B. Natkin, W. Mulcock, A. F. Salvatorelli, R. E. Bilby, C. J. Rigby, I. Pittleman.

Exhibiting: Packaged air conditioners, including vertical, water-cooled units available from 3 through 15 tons, and featuring new packaged horizontal units for ceiling or shelf mounting, offered in 3, 5 and 7½ ton water cooled and 3 and 5 ton air cooled models. Sharing the exhibit will be line of water coolers. Applications for enrollment in the G-E packaged air conditioning retail sales training course will be taken at the booth.

GENERAL FILTERS, INC., 43800 Grand River Ave., Novi, Mich.—Booth 916

In attendance: Robert G. Gregory, Roland A. Redner, Robert P. Redner, Mrs. Grace Redner, W. A. Proctor.

Exhibiting: Fuel oil filters for both light and heavy fuel oils; warm air humidifiers; soot remover; water traps, etc.

GENERAL MOTORS CORP.—see DELCO PRODUCTS DIV. and FRIGIDAIRE DIV.

GENERAL PLATE DIV. — see METALS & CONTROLS CORP.

GENERAL PRODUCTS CO., INC., Fredericksburg, Va.—Booth N-544

In attendance: H. S. McKann, R. C. Brillhart, J. E. Rowell, F. C. McGready, Vic Vogel.

Exhibiting: "Air-Jet" all fuel packaged chimney.

GENERAL REGISTER CORP., 14 Factory St., Cedar Grove, N. J.—Booth 1269

Exhibiting: Registers, grilles, convactor grilles.

GERWIN INDUSTRIES, INC., 214 Spring St., Michigan City, Ind.—Booth 611

In attendance: L. C. Cotts, Dan A. Lynch, Richard Cullom, Russell Luchtmann.

Exhibiting: Extended baseboard air distributors.

GIBSON REFRIGERATOR CO., DIV. OF HUPP CORP., Greenville, Mich.—Booths 210, 212, 214

GOODFELLOW CO., INC., E. D., 496 E. Bodley Ave., Memphis 6, Tenn.—Booth 833

In attendance: E. D. Goodfellow, C. E. Goodfellow, D. Ballon, W. T. Dawkins, C. R. Crain, C. L. Goodfellow.

Exhibiting: Newly designed induced draft cooling towers of propeller and centrifugal types, centrifugal pumps in sizes from ¼ through 30 hp.

GOODYEAR TIRE & RUBBER CO., INC., 1144 E. Market St., Akron 16, Ohio—Booth 444

In attendance: J. L. Krouse, C. E. Davis, A. R. Clark, G. G. Cartwright, C. R. Graham.

Exhibiting: "Pliotron" electrostatic selfcharging washable air filter for home, office and factory.

GORDON & PIATT, INC., Bldg. 3110 Strother Field, P. O. Box 914, Winfield, Kans.—Booth 54

In attendance: M. K. Gordon, W. R. Piatt, W. E. Robb.

Exhibiting: Domestic gas burners, commercial and industrial gas burners. Combination "Duo-Flame" gas-oil burner, with fuel transfer possible at any time during or between operating cycles, three sizes with maximum capacities of 10, 20 and 30 gph, and equipped with electronic combustion safeguard with programmed blower operation for purging the firebox before and after each operating cycle, will be featured.

GOULDS PUMPS, INC., Seneca Falls, N. Y.—Booth 728

GOVERNAIR CORP., 4840 N. Sewell, Oklahoma City, Okla.—Booths N-306, N-405

GREEN FUEL ECONOMIZER CO., INC., 700 Main St., Beacon, N. Y.—Booths 1243, 1245

In attendance: B. deTurenne, G. V. Eiserman, G. S. Johnson, C. H. Nelson, J. Lynch, J. J. Adams, J. J. Johnson, W. F. Byrnes, V. U. Mammano, O. A. Petti, W. Cawthon, W. L. Gabbett, J. B. Hewett.

Exhibiting: Automatic air filter.

GRINNELL CO., INC., 260 W. Exchange St., Providence 1, R. I.—Booth 732

Exhibiting: Pipe fittings, P.V.C. fittings, welding fittings, fabricated piping, diaphragm valves, pipe unions, "Thermolier" unit heaters, pipe hangers, engineered hangers, constant support hanger, sway braces.

GUSTIN-BACON MFG. CO., 210 W. 10th St., Kansas City 5, Mo.—Booths 729, 731

In attendance: M. F. Hauserman, Jr., G. P. Oldham, F. W. Muller, H. M. Grant, H. O. Sheidley, Wm. Smurdon, Jim McAdams, Joe Fairfield.

Exhibiting: Thermal acoustical glass fiber insulation, "Snap-On" pipe insulation, "Ultra-lite" and "Ultrafine" duct insulation and liner. A new molded glass fiber duct in round form will be introduced.

HALL-NEAL FURNACE CO., 1324 N. Capitol, Indianapolis, Ind.—Booth 1049

In attendance: Tom Williams, Tom Smith, Wendell Fleener, Cliff Harris, Joe Wellmuth, Arnold Masengale, Bill Stiller.

Exhibiting: Full lines of "Victor" heating and "Victoraire" cooling equipment. New 1957 heating equipment will be featured.

HALSTEAD & MITCHELL, 705 Bessemer Bldg., Pittsburgh 9, Pa.—Booth 1002

In attendance: Byron Halstead, Wm. Rapp, H. I. Schmidt, Robert Nelson, Wm. Moffitt, Harry Smith.

Exhibiting: Cooling towers, air cooled condensers, water cooled condensers, and blast cooling and heating coils.

HAMLIN CO., INC., J. F., 746 Ellis St., San Francisco 9, Calif.—Booth N-217

In attendance: Theodore Wysocki, Jean Blinn, Norris Ward, Paul Lamber, Ed Johnson, Joe Alaimo, George Wolf, Ralph Zentara, Edmund Beaubien.

Exhibiting: "Kor-it" concrete hole saw, junior concrete hand drill, and concrete saw. The large concrete hole saw weighs only 160 lb and may be carried in an automobile luggage compartment. It feeds automatically.

HARRIS & CO., ARTHUR, 212 N. Aberdeen St., Chicago 7, Ill.—Booth 1062

In attendance: George C. Harris, Arthur H. Elliott, Norman H. McClevey.

Exhibiting: Copper, stainless steel, monel, nickel, and steel floats.

HART & COOLEY MFG. CO., 500 E. 8th St., Holland, Mich.—Booth 1132

In attendance: G. D. Heerings, E. J. Bowder, J. H. Van Dyke, G. J. Braun, R. W. Gordon, R. J. Kubat, W. K. O'Brien, R. Smeenge.

Exhibiting: Registers, grilles and diffusers for residential and commercial heating and air conditioning. New baseboard "Diffusaire" with "Air-foil" valve and "Flexo-flange" will be featured.

HART HEAT DIV., AVERY FARM MACHINERY CO., Foot of Leland St., Peoria, Ill.—Booth N-401

In attendance: Earl K. Smith, Lloyd F. Smith.

Exhibiting: "Supra Flame" oil burners, oil fired furnace-burner units and boiler-burner units, gas fired furnace-burner units and boiler-burner units. Live operating demonstration of "Supra-Flame" oil burner with integral burner mounted primary safety control and new patent pending air diffusion controller will be featured.

HASTINGS AIR CONTROL, INC., 3215 Leavenworth St., Omaha 5, Nebr.—Booth 507

In attendance: M. S. Frankie, Felix Roth, L. Wintroub, P. Wintroub, R. L. Wintroub, T. M. Evans, Bennett Cohn, Lou Genung.

Exhibiting: Chilled water air conditioning equipment (floor models, suspended units and package coils); combination water and "Freon" coil conditioners (self-contained package units for business and home use); heating equipment (suspended unit heaters of fan, "Inshot" and duct type); forced combustion burners ("Inshot" and adjustable "V" type units); "Hoist-It," an adjustable, portable hoist designed to lift air conditioning equipment a maximum of 18 ft, 4000 lb capacity, two-man operation. "Clean-It" portable cleaning and washing equipment for condensers, air conditioning coils, blower wheels, housings, etc., will be featured.

HEATING & AIR CONDITIONING CONTRACTOR, 92 Martling Ave., Tarrytown, N. Y.—Booths 1239, 1241

Exhibiting: Publication.

HEATING, PIPING & AIR CONDITIONING, 6 N. Michigan Ave., Chicago 2, Ill.—Booth 924

In attendance: Charles E. Price, Wallace J. Osborn, Robert A. Jack, C. M. Burnam, Jr., Robert W. Roose, John H. Reock, George C. Cutler, Thomas V. Johnson, David V. Mahan, Robert J. Osborn.

Exhibiting: Heating, Piping & Air Conditioning magazine; technical books; market information.

HEAT-TIMER CORP., 657 Broadway, New York 12, N. Y.—Booths 336, 338

In attendance: Edward J. Zeitlin, Albert Fowler, Richard Lassar.

Exhibiting: Weather actuated heating controls, "Varivalves," "Thermovalves," main line quick vent valves, heat recorder-totalizer, smoke indicating alarms, smoke alarms, "Robot-Eye" combustion controls.

HEIL CO., THE, 3000 W. Montana Ave., Milwaukee 1, Wisc.—Booths 1117, 1121, 1125

In attendance: G. E. Hochstein, J. S. Huber, R. L. King, F. Zwanig, W. Edwards, K. Mould, A. Eunson, L. Danielson.

Exhibiting: Oil and gas furnaces, oil and gas boilers, air conditioners.

HENRY FURNACE CO., THE, Medina, Ohio — Booths 832, 933

HENRY VALVE CO., 3215 North Ave., Melrose Park, Ill.—Booth N-440

In attendance: R. S. Dickert, C. V. Gary, Evan Jones, P. G. Kollberg, J. R. McCahill.

Exhibiting: Valves, driers, strainers and accessories for refrigeration, air conditioning and industrial applications, including: bronze alloy check valves (piston type); new types "515" and "516" diaphragm packless valves of forged brass; brass, flanged, angle refill cartridge type driers; non-refillable type driers; forged steel packed liquid level gage set; brass, single and double port liquid indicators; forged brass angle relief valve; brass "straight-through" type relief valves; flanged, angle and "Y" type strainers; bronze alloy wing cap packed valves; semi-steel wing cap packed valves; semi-steel wing cap flanged valves with various type end connections. Types "515" and "516" diaphragm packless valves, and semi-steel wing cap flanged valves with various type end connections, including OD solder brass adapter and steel flange, steel butt weld adapter and steel flange, one piece F.P.T. flange, and one piece slip-on weld flange, will be featured.

HIDDEN HEAT, INC.—see **HI-FLOW PRODUCTS, INC.**

HI-FLOW PRODUCTS, INC., and **HIDDEN HEAT, INC.**, 1395 Marconi Blvd., Copiague, L. I., N. Y.—Booth 719

In attendance: Philip Seligson, Peter Garcia.

Exhibiting: Oil burner, gas burner, hot water heating boiler, radiant panels and accessories, manifolds. Prefabricated complete slab assembly of radiant panels requiring no field welds or threading, representative radiant installations being illustrated, will be featured.

HILTI RAPID FASTENING SYSTEMS INC., 55 Vandam St., New York 13, N. Y.—Booth N-402

In attendance: H. P. Rossiger, Wm. Roller, H. J. Shillings, W. E. Pestalozzi, F. Durant.

Exhibiting: Hammer actuated drive tools, "Conic" studs and pins. A series of new drive tools designed for special applications will be demonstrated.

HUPP CORP., GIBSON REFRIGERATOR CO. DIV., Greenville, Mich.—Booths 210, 212, 214

HUPP CORP.—See **PERFECTION INDUSTRIES DIV.** and **TYPHOON AIR CONDITIONING CO.**

HYDROTHERM, INC., Northvale, N. J.—Booth 772

In attendance: J. F. Baier, W. F. Hosmer, E. C. Jackson, H. D. Staman, F. W. Helikson.

Exhibiting: Gas fired hot water heating equipment.

ILG ELECTRIC VENTILATING CO., 2850 N. Pulaski Rd., Chicago 41, Ill.—Booths 1037, 1041

In attendance: J. M. Frank, W. H. Rietz, J. J. Friedler, Jr., C. W. Dexter, R. Rucker, B. L. Casey, A. C. DeSmet, W. H. Hallsteen, M. J. Joyce, C. F. Rietz, S. Heyerick, W. G. Sterba.

Exhibiting: Airfoil centrifugal fans, volume and pressure centrifugal fans, propeller and centrifugal power roof ventilators, high and low speed propeller fans, explosionproof and tubaxial propeller fans, horizontal and vertical unit heaters, all-electric unit heaters, home cooling fans, kitchen ventilators.

ILLINOIS ENGINEERING CO., 2035 S. Racine Ave., Chicago 8, Ill.—Booths 38, 40

In attendance: C. A. Pickett, J. J. Willis, P. B. Hultgren, J. L. Ehretzman, R. W. Leutwiler, G. W. Snagel, G. N. Baustian.

Exhibiting: Heating specialties, control systems, condensate pumps, heat exchangers, connectors.

ILLINOIS IRON & BOLT CO., W. Main St., Carpentersville, Ill.—Booth 207

In attendance: J. M. McClintock, J. M. Mullaney, F. W. Cochran, P. MacDuffy.

Exhibiting: "Combustioneer" stoker, "Freeman" stoker, "Freeman" furnaces "Freeman" incinerators, "Burdett" conversion burner.

ILLINOIS TESTING LABORATORIES, INC., 420 N. La Salle St., Chicago 10, Ill.—Booths 974, 1073

In attendance: J. A. Obermaier, M. J. Rauscher, W. J. Bailey, J. J. Kuska, M. D. Carlson, C. O. Wilson, R. E. Fleming.

Exhibiting: Pyrometers, velometers, dew point indicators.

IMPERIAL BRASS MFG. CO., THE, 1200 W. Harrison St., Chicago 7, Ill.—Booth 1272

In attendance: T. A. Fuite, C. O. Engels, J. Maloney, J. Galloway, A. Hallstrom, G. Williams, J. Gillespie, E. F. Todd, M. L. Warder, C. H. Benson, H. T. McNellis, F. J. McNellis, G. E. Franck.

Exhibiting: Tube fittings in brass, steel, aluminum, stainless steel and nylon, including "Hi-Seal," "Hi-Duty," "Ermeto," 45 deg and 37 deg flared, compression, "Poly-Flo," "Nylo-Seal," "Flex;" refrigeration valves, fluid control valves; tube cutters, flaring tools, tube benders, test plugs, reamers, pinch-off tools, swaging tools, refacing tools; pressure hose and couplings for low, medium and high pressure applications; refrigerant charging and testing units and other service tools. New "Diamond" valves for refrigeration applications, new "Golden Torpedo" refrigerant driers, new "Magic-Eye" liquid indicators with solder connections, new "Micro-Stricter" for constricting capillary tubing, combination tube cutter and tube constrictor, new 9-in-1 flaring tool, and new improved "Blue Dot" lever-type tube benders will be featured.

INDEPENDENT BLADE CO., 587 Thompson Ave., East Haven 12, Conn.—Booth N-420

In attendance: Ray Westlund, Jr., T. S. House, Victor D. Vogel, Joe Vogel, Earl Newville, Earl T. Peck, Edward Lepowsky.

Exhibiting: Complete line of over 30 types and sizes of saw blades incorporating new "Fit-Al" tang designed to fit chuck of all types of reciprocating saws. Types to be shown include "Wood-Master" for cutting wood, lumber with nails, roughing-in, heating, electrical, insulating, plumbing, and maintenance work; "Metal-Master," of flexible high speed steel, for cutting sheet metal, angles, bar stock, "Transite," hard rubber, fiber, etc.; and introducing new "Plaster-Master" blade, of flexible stock and specially hardened, for longer cutting life in plaster and similar abrasive materials.

INDEPENDENT REGISTER CO., THE, 3747 E. 93rd St., Cleveland 5, Ohio — Booth 437

In attendance: K. B. Solberg, B. N. Richardson, A. H. Ullman.

Exhibiting: Registers and grilles for heating, ventilating, and air conditioning. "Fabricated" wall grilles, special large sizes made to order, will be featured.

INDUSTRIAL ACOUSTICS CO., INC., 341 Jackson Ave., New York 34, N. Y.—Booth N-411

In attendance: Martin Hirschorn, Stannard M. Potter, A. C. Hawthorne, Alfred H. Siebel, Walter F. Ring, Charles Rink.

Exhibiting: "I.A.C. Q-Duct" packaged, standardized silencer showing the acoustical performance in comparison to other types of ducts.

INGERSOLL CONDITIONED AIR DIV., BORG-WARNER CORP., 760 E. Vine St., Kalamazoo, Mich.—Booths 658, 662, 666

In attendance: R. C. Hauck, W. T. Goldsmith, G. Bosch, H. Swan, Gray Huston, Allan B. McLellan, Owen Marquette, George Brown, Ed Douthick, Phil Donnelly, Carroll Crowe, Ken Junker, Ed Effinger, Al Frederick, Jim McNamara.

Exhibiting: New attic stowaway model air conditioner, 105,000 Btu input natural gas counterflow belt drive, new oil furnace (deluxe model), new oil furnace (builder model), remote high-sides with A-type evaporator coils, "Airline" diffuser and boot, electronic filter, square cased coal fired furnace, vertical air-cooled companion unit, remote condenser, remote high-side compressor unit, downflow evaporator coil, gas lo-boy furnace, oil suspended furnace, oil hi-boy furnace. New oil furnaces, remote high-sides with A-type evaporator coils, diffuser and boot, electronic filter, and new attic stowaway model air conditioner will be featured.

INGERSOLL-RAND CO., 11 Broadway, New York 4, N. Y.—Booths 1255, 1257

In attendance: W. J. Kearns, T. Bosshard, Jr., S. B. Wolfe, Jr., S. S. Orben, R. J. O'Donnell, R. F. Totman, H. W. Newcome, H. L. Clarke, R. Watkins, W. W. Cramer, W. Acosta, R. Whelan, A. J. Tyler, E. L. Raining, E. L. Hawes.

Exhibiting: Centrifugal pumps. Results of friction loss on piping and fittings will be demonstrated visually.

INSTO-GAS CORP., 998 E. Woodbridge Ave., Detroit 7, Mich.—Booth N-412

In attendance: William W. Steinert, James Hirschfeld.

Exhibiting: Torches and furnaces, soldering iron heaters, salamanders, infra-red heaters.

INSUL-LYTE CORP., DIV. OF PLIBRICO CO., 130 W. Pleasant St., River Rouge 18, Mich.—Booth N-406

In attendance: James R. Crosby, Lester E. Hyde, Victor Vogel, Joseph Vogel, H. L. McNally, J. D. McNally.

Exhibiting: Combustion chambers, baffles, domestic and commercial refractories. Adjustable leg baffle will be featured.

INTERNATIONAL BASIC ECONOMY CORP.—see **ANDERSON CO., V.D.**

INTERNATIONAL BUSINESS MACHINES CORP., 590 Madison Ave., New York 22, N. Y.—Booth N-201

Exhibiting: Electronic central control systems for automatic or manual control of air conditioning, heating and similar utility functions will be demonstrated.

INTERNATIONAL HEATER CO., 101 Park Ave., Utica 2, N. Y.—Booth 28

In attendance: Robert Adloff, Dan Banner, Irving Barber, Charles Bremer, Cal. Calhoun, Elwood Hesch, Jack Hildebidle, George Johnson, Dan McCarthy, Jay Rhodemyre, Allen Trask, Cloyd Weaver, Millar Wheeler, Leonard White.

Exhibiting: Gas and oil lowboys, highboys, counterflows, suspended units; complete line of cooling equipment, including air cooled remote, compressors up to 6½ hp, cooling coils and plenums for all types of systems, horizontal unit coolers, horizontal self-contained units, commercial units. Unit coolers, 6½ hp air cooled remote compressor and commercial units; and two gas conversion burners, up to 310,000 Btu input, 250,000 Btu gas lowboy, will be featured.

INTERNATIONAL MFG. CO., AIR CONDITIONING DIV., 600 E. Grand Ave., Oklahoma City, Okla. — Booths 1054, 1056

In attendance: James D. Harden, Glenn Tharp, Kenneth Lumery, Ion Caloger.

Exhibiting: Remote type, chilled and hot water units in capacities of ½, ¾, 1, 1½, 2, 2½, and 3 tons for concealed or exposed installations in hotels, office buildings, motels, etc. Twelve new units in 2, 2½, and 3 ton sizes and four models (ceiling hideway, ceiling enclosed, console hideway, console enclosed) will be featured.

IRON FIREMAN MFG. CO., 3170 W. 105th St., Cleveland 11, Ohio — Booth 224

In attendance: D. P. Bailey, L. F. Cox, H. M. Cuthaw, G. T. Kaufman, R. F. Lunt, W. F. Strong, R. C. Wright, Dale Wylie.

Exhibiting: Several different models of commercial and industrial oil, gas, and combination gas-oil burners. "MicroMist" oil atomizing burner for heavy oils, including No. 5, with range of 3 to 25 gph; and commercial forced draft burner, will be featured.

IRON FIREMAN MFG. CO. — also see PETRO DIV.

JACKES-EVANS MFG. CO., 4427 Geraldine Ave., St. Louis 15, Mo. — Booth 235

In attendance: Stanley F. Jackes, A. M. Cornwell, Jr., John H. Marling, Joe Boing, Frank Vargo.

Exhibiting: Solenoid valves (7/64 in. to 1-½ in. port sizes, 1 to 250 psi, 0 to 225 F). Exhibit includes first showing of new multi-voltage coil, now available for all "J-E" solenoid valves, for flow control of water, "Freon" 12 and 22, industrial coolants, brines, etc., through 42 different valve styles and capacities, and with any one of seven electrical circuits (115/25, 115/50 and 60, 208/50 and 60, 230/50 and 60), data plate showing correct hook-up being supplied with each valve.

JACKSON & CHURCH FURNACE DIV., 321 N. Hamilton St., Saginaw, Mich. — Booths 846, 850

In attendance: D. L. Perrot, L. S. Redford, H. K. Beck, F. C. Adams, F. E. Young, P. W. Adams, Ray Boland, R. V. Chisolm, T. L. Conlon, A. E. Duwe, E. M. Fonder-smith, C. C. Kerndt, Harry Linch, A. G. Nye, B. H. Pettit, A. W. Pracker, L. J. Prues, S. M. Stroth, H. A. Weller.

Exhibiting: Oil and gas and dual fuel direct-fired unit heaters; oil and gas suspension units; oil, gas and dual fuel industrial and institutional units. New direct-fired "Power Saver" unit heaters for gas, oil and dual fuel will be featured.

JANITROL HEATING & AIR CONDITIONING DIV., SURFACE COMBUSTION CORP., 400 Dublin Ave., Columbus 16, Ohio — Booth 2

In attendance: R. E. Ireland, Paul A. Ryan, Ray Reed, Fred S. Hamer, C. H. Langendorf, W. R. Egan, R. R. Sandusky, Les Shaefer, Don H. Clague, Abner Baker, R. R. Ramsey, R. H. Balk, R. B. Thornburgh, R. L. Deeley, C. C. Owen, L. J. Monahan, H. C. Gurney, E. H. Lloyd, J. I. Trimble, Wm. M. Myler, M. L. Lavorgna, Arno Gerd-

sen, N. B. Buehrer, F. J. Evans, H. A. Macfarlane, L. S. Reagan, G. Bergholdt, W. Charles, H. W. Blauthe, F. Johnson, G. Kelley, J. O'Brien, R. A. Bell, R. W. Glenn.

Exhibiting: Gas winter air conditioners, year 'round conditioners, unit heaters, conversion burners, oil winter air conditioners, summer air conditioners.

JEFFERSON ELECTRIC CO., Bellwood, Ill. — Booth 749

JENKINS BROS., 100 Park Ave., New York 17, N. Y. — Booth 1230

JENN AIR PRODUCTS CO. INC., 1102 Stadium Dr., Indianapolis 7, Ind — Booth 928

In attendance: L. J. Jenn, G. V. Patterson, H. J. Kennedy, Rex Welch, W. E. Morrison.

Exhibiting: Power roof and wall exhaust fans (both direct drive and belt drive); relief vents, U-spring "Quiet Tested" units which use stainless steel springs as a method of suspension will be displayed.

JOHNS-MANVILLE SALES CORP., 22 E. 40th St., New York 16, N. Y. — Booth 533

In attendance: H. Thomas, J. G. Williams, A. W. Bergman.

Exhibiting: "Transite" air duct, "Fibrocel" pipe insulation, "Spintex" home insulation.

JOHNSON CO., S. T., Oakland, Calif., and Bridgeport, Pa. — Booths 643, 645, 647

In attendance: D. E. Johnson, Al Dimick, W. J. Trombly, Robert P. Johnston, W. S. Har-lacher, W. E. Lees, R. Knapp.

Exhibiting: Commercial, industrial and residential oil and combination oil or gas burning equipment; forced draft units; gas boilers. The forced draft units will be featured.

JOHNSON SERVICE CO., 507 E. Michigan St., Milwaukee, Wisc. — Booths 616, 620, 624

JOURNAL OF PLUMBING, HEATING & AIR CONDITIONING, 92 Martling Ave., Tarrytown, N. Y. — Booths 1239, 1241

Exhibiting: Publication.

JOY MFG. CO., 333 Oliver Bldg., Pittsburgh 22, Pa — Booths 510, 514

In attendance: Raymond Mancha, J. P. Cartwright, Richard Heindel, William Hay, H. R. Carlson.

Exhibiting: "Series 1000 Axivane" standard fans (complete line). "Microdyne" dust collector (miniaturized wet-inertial type) will be featured.

KAISER ALUMINUM & CHEMICAL CORP., Kaiser Bldg., 1924 Broadway, Oakland 12, Calif. — Booth 1067

KAISER CO., E. B., 2114 W. Lake Ave., Glenview, Ill. — Booths 546, 548

In attendance: Edw. B. Kaiser, Jr., W. F. Kellogg, C. W. Kimbrough, F. J. Ross.

Exhibiting: "Ekbo" prefabricated, insulated underground and overhead piping systems; viscous liquid handling systems; heat ex-changers and tank suction heaters.

KAUSTINE FURNACE & TANK CORP., Perry, N. Y. — Booth 606

In attendance: J. B. Mollnow, Sr., J. B. Mollnow, Jr., R. E. Preine, W. F. Stahl, Harry Oxenreider.

Exhibiting: Gas and oil fired residential heating units.

KEENEY PUBLISHING CO. — see AMERICAN ARTISAN AND HEATING, PIPING & AIR CONDITIONING

KENNARD CORP., 1819 S. Hanley Rd., St. Louis 17, Mo. — Booths 716, 720

In attendance: Sam M. Kennard, III, W. Boardman Jones, Jr., Fred G. Bietsch, Ben M. McDougall, Fred W. McKenna, Robert C. Sweiger, Lewis Davidson.

Exhibiting: Air conditioning blower units, liquid chiller, cooling towers, coils.

KEWANE BOILER DIV. — see AMERICAN-STANDARD, KEWANE BOILER DIV.

KINNEY MFG. DIV., THE NEW YORK AIR BRAKE CO., 3529 Washington St., Boston 30, Mass. — Booths 1155, 1159

KOCH ENGINEERING CO., INC., 321 W. Douglas Ave., Wichita 2, Kans. — Booth 1122

In attendance: Ranie Love, Fred Blackshere, Jack Kice.

Exhibiting: Jet forced draft cooling towers, 3 to 25 tons. Forced draft cooling towers "moving air by jet action without fans, motor, belts, etc." will be featured.

KODY BLOWER CO., P. O. Box 765, Trenton 5, N. J. — Booths 640, 644

KOPPERS CO., INC., METAL PRODUCTS DIV., 200 Scott St., Baltimore 3, Md. — Booth 246

In attendance: Sid Fedan, George Thomas, R. D. Lemmerman, J. L. Phillips, T. F. Naylor, J. E. Onnen.

Exhibiting: "Aircoustat" sound attenuators, "Hi-Valve Aircoustat" sound attenuators, "Soundmetal" panels for cooling tower applications, "Aeromaster" fans for industrial cooling.

KORFUND CO., INC., THE, 48-15 32nd Pl., Long Island City 1, N. Y. — Booth 42

In attendance: J. I. Hammond, Jr., N. Creash, S. L. Perlow, Donald H. Vance.

Exhibiting: Steel spring machinery mounts for vibration isolation ("Vibro-Isolators"), pad type mountings ("Elasto-Rib" pads and dampers), fan motor bases, slide rail motor bases, pipe and equipment hangers ("Vibro-Hangers"). New universal "Elasto" damper will be featured.

KRITZER RADIANT COILS, INC., 2901 Lawrence Ave., Chicago 25, Ill.—Booths 107, 109

In attendance: Henry E. Kritzer, Henry E. Kritzer, Jr., C. G. Newton, L. D. Mandell, W. K. Smith, E. J. Hoppe, C. C. Schedler, R. F. Beattie, W. S. Berresheim, L. J. Potvin, E. A. Sidney, E. Roebuck, W. J. Potvin, E. J. Kwasinski, W. Esterdahl, J. L. Shank, Pat Savage, D. M. Archer, F. E. Baird, W. H. Baker, J. A. Berger, M. M. Berger, C. H. Buck, H. V. Caton, J. W. Cherry, R. L. Craig, E. H. Crozier, J. N. Doyle, J. H. Fogg, T. C. Gianos, L. N. Green, J. L. Harvey, E. L. Herbert, Ralph Hyer, H. P. Jensen, E. L. Kuderling, W. A. Lefler, Louis Loeffler, Jr., Walter Loeffler, C. G. Lorton, R. H. McGeorge, Sr., H. L. McMurry, J. D. MacLean, J. K. MacLean, W. F. MacLindon, H. A. MacVicar, G. E. Mellerup, R. A. Provine, E. E. Ralston, H. G. Richardson, R. L. Rothrock, R. A. Sansing, Jr., R. A. Sepe, M. E. Siegfried, R. E. Sears, J. Bert Slater, J. W. Stevens, W. T. Wheeler, W. C. Woods, W. R. Johnson, H. J. Lipke, C. W. Morrill, J. L. Myers, F. L. Nelson, A. C. Patterson, B. R. Peterson, D. O. Peterson, Seth P. Wood, Bernard Zaritzky.

Exhibiting: Hot water baseboard, convectors, commercial and industrial fin tube, unit heaters, heating/cooling units, water chillers, warm air baseboard.

KRUEGER AIR CONDITIONING CO., 19 E. Rillito St., Tucson, Ariz.—Booth 308

In attendance: Leo Krueger, J. B. Smith, T. B. Kleckner, Jules Schor.

Exhibiting: Registers and grilles.

L.O.F. GLASS FIBERS CO., 1810 Madison Ave., Toledo 1, Ohio—Booth 1120

LAKE CHEMICAL CO., 3052 W. Carroll Ave., Chicago 12, Ill.—Booths N-216, N-220

Exhibiting: "Pipette-Stik" pipe joint compound in stick form; "Olytite-Stik" sealing cement for oil leaks; "Kraak-Stik" sealing cement for cracks, splits and gaskets; non-acid, self-cleaning, paste, stick and liquid form fluxes—"La-Co" regular flux, electro flux, silver solder flux, stainless steel and chrome flux, aluminum flux. There will be an actual demonstration of sealing spurring oil leaks while oil is running through cracks, and actual soldering operations of copper, aluminum, stainless steel and other metals will be shown.

LAU BLOWER CO., 2001 Home Ave., Dayton 7, Ohio—Booth 836

In attendance: C. Miley, E. Humphrey, W. Morrissey, D. Jensen, W. Lohrey, G. Mergenthaler, H. Seebach, C. Sigman.
Exhibiting: Heating and air conditioning blowers, wheels, belts, bearings, pulleys.

LAWLER AUTOMATIC CONTROLS, INC., 493 N. Mac Quessen Pkwy., Mt. Vernon, N. Y.—Booth 110

In attendance: R. C. Smith, Jr., J. R. Lawler, Jr., Parker Tyler, Phillip Barret, Andrew Wehrli, Robert Brumitt.

Exhibiting: Thermostatic control valve. New model temperature regulators will be featured.

LENNOX INDUSTRIES INC., 1701 E. Euclid Ave., Des Moines 3, Iowa—Booths N-334, N-336

In attendance: Martin G. Beline, Norman L. Rutgers, Robert Sparks, Ed C. Riggs.

Exhibiting: Roof ventilators, room coolers, and vent sets, and featuring "Comfort Curtain" heating and ventilating system for school classrooms, and industrial heating and ventilating.

LESLIE CO., Lyndhurst, N. J.—Booth 225

LEWIN-MATHES CO., 1111 Chouteau Ave., St. Louis 2, Mo.—Booth 106

In attendance: Allan B. Lewin, Roy Klostermeyer, Pat Leonard, Robert Cook, Robert Leonard, James Lewin.

Exhibiting: Copper and brass tube and rod; miniature draw-bench drawing copper tubing.

LIBBEY-OWENS-FORD GLASS CO., 608 Madison Ave., Toledo 3, Ohio—Booth 633

LIMA REGISTER CO., 1790 N. Cable Rd., Lima, Ohio—Booth 316

In attendance: Henry R. Pataky, Norman F. Jones, Lee Beckman, Joe Irvin, C. B. Armour, C. J. LeMaster, R. B. Morey, H. F. Robinson, J. G. Thomas.

Exhibiting: Registers, diffusers and grilles for heating and air conditioning. New series 72 diffusers will be featured.

LITTLE GIANT PUMP CO., Box 9545, Oklahoma City, Okla.—Booth 564

LOCKFORMER CO., THE, 4615 W. Roosevelt Rd., Chicago 50, Ill.—Booth 1233

In attendance: George W. Lamberson, Ed C. Bill, John L. Davis, Leo R. Gale, I. Thompson.

Exhibiting: "Lockformers" Nos. 24, 20 and 16; snap lock machine, "Cleatormer," standing S-cleat machine, complete power slitter. "Super Speed No. 20 Lockformer" and self guiding flanging attachment will be featured.

LONERGAN MFG. DIV. OF McGRAW ELECTRIC CO., 704 N. Clark St., Albion, Mich.—Booth N-317

In attendance: Philip J. White, Rowe Greenway, Robert J. Wellman, John R. Lonergan.
Exhibiting: Remote central air conditioning and self-contained central air conditioning.

LYCOMING DIV., SPENCER HEATER, AVCO—see SPENCER HEATER

MAGIC AIRE DIV., UNITED ELECTRIC CO., 501 Galveston St., Wichita Falls, Texas—Booth N-504

In attendance: Maurice W. McCall, Craig T. Gaines, Riley Cook.

Exhibiting: Evaporator coils, condenser coils, air cooled condensers, evaporative coolers. V coil evaporators for use in converting forced air heating systems to air conditioning will be featured.

MAGNETROL, INC., 2110 S. Marshall Blvd., Chicago 23, Ill.—Booth 1154

MAID-O'-MIST, INC., 3217 N. Pulaski Rd., Chicago 41, Ill.—Booth 216

In attendance: O. V. Woolley, H. J. Carr, J. A. Madden, R. Schneider, Wm. G. Musson, Joseph O'Connor, R. W. Hall, H. T. Waterstraat, Bernard Munding, R. Fitzgerald, E. E. Berthet, L. E. Pelletier, M. G. Hanson, C. L. Boyer, L. Schneider, Rich Lloyd, H. E. Culley, M. D. Puckett, J. L. Edgar, E. H. Price, Fred French, J. Wm. Walter, John P. Templeton, James McEntee, George Miller.

Exhibiting: Warm air, hot water, steam and atomizing spray automatic humidifiers and related items; complete line of float operated air valves for hot water heating, and chilled water cooling systems; balancing valve adapter units for hot water heating systems; water line float control valves; humidifier valves; water feeders and cut-offs. Automatic humidifier made especially for modern convactor radiators, designed to supply ample humidification for either cast iron or copper convactor radiators, and made in 10 sizes with evaporating capacities ranging from 1 to 5 gal of water per day, will be featured. Also featured will be convactor humidifier to fit counterflow, conventional and year round air conditioners which because of narrow troughs, can be installed on either side of a counterflow furnace having a minimum air passage of 3 in.

MAJOR CONTROLS CO., Hwy 71 & Yorba Rd., Corona, Calif.—Booth 326

In attendance: Walter Lee, Richard Bennett.
Exhibiting: Gas appliance pressure regulators and manual shutoff valves. "H-100" pilot regulator will be featured.

MAMMOTH FURNACE CO., THE, 6425 Cambridge St., Minneapolis, Minn.—Booth 911

MANVILLE BOILER CO., INC., 415 Lexington Ave., New York 17, N. Y.—Booth 414

MARATHON ELECTRIC MFG. CORP., Wausau, Wisc.—Booth 762

MARCH MFG. CO., 8015 N. Lawndale Ave., Skokie, Ill.—Booth N-330

In attendance: W. E. Zimmermann, F. N. Zimmermann, R. H. Bennett, W. K. Zimmermann, Bernard E. Konopka.

Exhibiting: Complete line of condensate removal pumps for air conditioning and refrigeration equipment, in both 115 and 230 voltages, designed to mount inside the air conditioning or refrigeration unit. New model "B-F" float controlled pump which mounts inside the air conditioner drip pan under the evaporator coil, is controlled by the water level in the pan and is actuated by a float and mercury switch mechanism will be featured. It handles vertical lifts of over 9 ft and horizontal runs up to 300 ft.

MARCO INDUSTRIES, INC., Womelsdorf, Pa.—Booth 435

MARLEY CO., THE, 222 W. Gregory, Kansas City 14, Mo.—Booth 815

In attendance: L. T. Mart, J. A. Cameron, L. A. Christensen, R. J. Powell, Don Cousins, R. L. McFadin, A. R. Thompson, A. D. Talbot, W. C. Cramer, M. H. McWilliams, C. A. Smith, J. J. Parker.

Exhibiting: Water cooling towers—"Aquatowers" and "Double-Flow Aquatowers."

MARLO COIL CO., 6135 Manchester Ave., St. Louis 10, Mo.—Booth 1207

In attendance: L. C. Pellegrini, F. G. Meyers, W. H. Frenger, Henry Kipp, Victor Porta, J. J. Kramer, W. B. Moses, Jr., K. W. Wicks, J. Vorbeck, H. R. Iverson.

Exhibiting: Air cooled condensers and evaporative coils for heat pump applications, "Seasonaire" remote type units, spray type dehumidifiers, horizontal and vertical air conditioning units, heating and ventilating units. New designs will be featured.

MARSH HEATING EQUIPMENT CO., 3501 W. Howard St., Skokie, Ill.—Booth 525

In attendance: James Emmett, Jr., William M. Ensign, R. E. Barnett, Don L. Warner, Thomas E. Zurick, Harry Kirby, James G. Kelly, Mansur Storrs, S. C. Kaufman, Sr., Chas. Kelly, Fred Hadwin, R. M. Anthony, Jr., Frank J. Whitman, F. E. Keeler, R. G. Dinham, Russell Jacobson, Howard Lavaty.

Exhibiting: Complete line of heating specialties, refrigeration and air conditioning gages, valves, thermometers, solenoid valves, high pressure all-steel needle valves.

MARVAIR DIV., MUNCIE GEAR WORKS, INC., Muncie, Ind.—Booth 1215

MASTER BILT REFRIGERATION MFG. CO., 4209 Folsom Ave., St. Louis, Mo.—Booth 562

MAXITROL CO., 12200 Beech Rd., Detroit 39, Mich.—Booth 321

In attendance: Frank Kern, Jr., Charles Stang, Jr., Robert T. Hlavin, Del V. Krieger, D. L. Zorn.

Exhibiting: Gas pressure regulators in pipe sizes from 1/8 to 3 in.

MCDONNELL & MILLER, INC., 3500 N. Spaulding Ave., Chicago 18, Ill.—Booth 1000

In attendance: E. N. McDonnell, John James, James Solon, Nils W. Swanson, George La-Roi, Eugene Mitchell, James Platt, James Ramsay, Howard Peary, Dick Berry, John Dobise, Paul B. Holmes, Leo J. Kmiecik, William Gleeson, Russ Evans.

Exhibiting: Safety devices for steam and water heating, and related products. Several new larger capacity Btu rated pressure relief valves will be exhibited for the first time.

McGRAW ELECTRIC CO.—see LONERGAN MFG. DIV.

McINTYRE ENGINEERING CO., INC., 137 S. Linden Ave., South San Francisco, Calif.—Booth N-431

In attendance: Wm. C. McIntyre, Robert A. Clarke, Louis V. Vitali, A. O. Frederick, Wm. G. Craig.

Exhibiting: "M/E" universal hot water heating boiler, "M/E" universal swimming pool boiler, U. S. Navy standard unit cooler. New 250,000 Btu per hr input swimming pool boilers will be featured.

McQUAY, INC., 1600 Broadway N.E., Minneapolis 13, Minn.—Booth 31

In attendance: B. E. James, H. Blake Thomas, W. H. Markson, W. B. Buck, Alvin R. Flynn, Frank F. Altman, Duane R. Wallin, R. E. Sorenson, R. K. Mattson, Norton Korn, H. B. Williams.

Exhibiting: Residential evaporators; 3/4 in., 1/2 in. and 3/8 in. OD tube evaporators and condensers; jet tube steam coil. Cabinet unit heaters and multizone air conditioners will be featured.

MERCORD CORP., THE, 4201 Belmont Ave., Chicago 41, Ill.—Booth 536

In attendance: Hugh Courteol, J. W. Owens, W. K. Stauffer, W. E. Jones, V. S. Skale, P. J. Provost, J. F. McCauley, W. Ufer, W.

Lischett, W. K. Stein, P. P. Sloss, W. L. Colterjohn.

Exhibiting: Mercury switch equipped controls for pressure, differential pressure, two-stage pressure, temperature, two-stage temperature, liquid level, mechanical movement; transformer-relays; oil burner safety controls; room thermostats; etc.

METALBESTOS DIV., WILLIAM WALLACE CO., Belmont, Calif.—Booth 672

In attendance: Frank Kobles, C. A. Perry, E. F. Fields, R. Frolick, W. Bialock.

Exhibiting: Gas vent pipe and fittings and "Safety Systems" gas vent tables. Gas vent action demonstrator using water in glass pipes to show importance of correct sizing of gas vent piping will be featured.

METALS & CONTROLS CORP., 34 Forest St., Attleboro, Mass.—Booth 1104

In attendance: J. Ottmar, W. W. Kuehl, R. M. Glidden, R. W. Peck, E. P. Jastram, A. P. White, B. O. Haun, Jr., F. Stearns, D. K. Wells, J. Cooney, E. Kurtz, J. Woodward.

Exhibiting: *Spencer Thermostat Div.* will show inherent overheat motor protectors, hermetically sealed thermostats, motor starting relays, air conditioning controls, three phase Y-connected motor protectors, appliance thermostats, tube type thermostats, aircraft and automotive circuit breakers, aircraft motor protectors, precision switches, "Klixon" snap-acting disc type thermostats. Fixed temperature control of both domestic hot water and house heating boiler operations will be featured. . . . *General Plate Div.* will show airfoil shaped strip; "Alcuplate" (copper clad aluminum); thin gage metals; electrical contacts; composite metals (precious and base—wire, sheet, tubing); "Conflex" (hardenable steel clad copper); "Bondwich" (brazing shim); "Nifer" (nickel clad iron); "Truflex" (thermostat metals); "Haynes Stellite" alloys in thin gages; electrical contact tapes; collector or slip rings; silver brazing alloys; stainless steel clad copper; copper clad glass sealing alloys; top-layer contacts and strip; platinum group metals.

MID-CONTINENT METAL PRODUCTS CO., 1960 N. Clybourn Ave., Chicago 14, Ill.—Booth 120

MILLER VALVE CO., INC., 1620 Pennsylvania Ave., Pittsburgh, Pa.—Booth 1118

In attendance: T. C. Miller, H. Henggi.

Exhibiting: Silent check valves. Vacuum controlled check valve for use with compressors will be featured.

MILWAUKEE ELECTRIC TOOL CORP., 5316 W. State St., Milwaukee 8, Wisc.—Booth 215

In attendance: G. E. Heaston, M. E. Halvorsen, L. T. Morand, J. R. Wanie, T. D. Langdon.

Exhibiting: Complete line of electric tools, "Sawzall" electric hacksaw, and right angle drills for spot drilling and "Selfeed" bits for big hole boring. New Pittsburgh lock hammer will be featured.

MILWAUKEE GAS SPECIALTY CO., 730 N. Jackson St., Milwaukee 1, Wisc.—Booths 964, 965

In attendance: John H. Thornberry, Vern C. Kitzrow, Don R. Weidenfeller, W. G. Fetter, R. E. Johnson, E. O. Abel, J. H. Muth.

Exhibiting: Automatic safety pilots, automatic gas control systems, gas appliance ignition systems. Electric igniter, magnetic valves, and 100 percent shut-off switches will be featured.

MILWAUKEE VALVE CO., subsidiary of CONTROLS CORP. OF AMERICA, 2375 S. Burrell St., Milwaukee 7, Wisc.—Booth 655

In attendance: Walter Ellingsboe, Tom French, Carl Rowe, Jim Bonga, H. Welch.

Exhibiting: Brass gate, globe, check, angle and needle valves and brass headers and distributors.

MINNEAPOLIS-HONEYWELL REGULATOR CO., 2753 Fourth Ave., S., Minneapolis 8, Minn.—Booth 917

In attendance: *Residential Division*—K. L. Wilson, Karl W. Schick, Walter Baak, H. C. Carlsen, Richard M. Locke, Russel N. Keppel, S. C. Marshall, John P. McCordle, Leo C. McRoberts, T. A. Reed, John Park, C. C. Cochran. *Commercial Division*—John Haines, James S. Locke, J. F. Cumiskey, Robert E. Hall, R. H. Jacobs, Ralph W. Cryslar, E. F. Snyder, V. Dale Wissmiller, C. W. Procter, Jr., Douglas K. Ridley, H. R. Canoyer, L. B. Belford.

Exhibiting: *Residential Division*—Residential air conditioning and heating controls: thermostats, control panels and relays including new "R447" heavy-duty switching relay; residential zone controls for both warm air and "wet" heating systems, including new "M-829" zone damper control system; new "L 8024" combination aquastat-relay for "wet" heating system control; residential flame safeguards; gas primary controls; oil controls; and appliance controls, including "V5157" Adatrol-Modusnap. *Commercial Division*—New high velocity, double duct air blender valve; new "Supervisory Data Center" control panel; new electronic air cleaner; and complete line of electric, pneumatic and electronic controls for commercial and industrial buildings.

MITCHELL MFG. CO., 3200 W. Peterson Ave., Chicago, Ill.—Booth 754

In attendance: Robert H. Lodge, Robert Sheridan, Howard G. Haas, Walter F. Zale, E. Mankowski, F. Scive.

Exhibiting: Residential and commercial air conditioning equipment. "Compax" air cooled residential air conditioner, a new self contained unit that requires only an electrical connection and no refrigerant piping, will be featured, with a 4 hp model on display.

MODINE MFG. CO., 1500 DeKoven, Racine, Wisc.—Booth 854

In attendance: C. C. Wilson, Owen Desmond, M. J. Druse, B. J. Speith, S. Svoboda, H. Clark, K. Wennik.

Exhibiting: Steam, hot water, and gas fired unit heaters; convector radiators; cabinet unit heaters; air conditioners; gas-fired duct furnaces.

MONARCH MFG. WORKS, INC., 2501 E. Ontario St., Philadelphia 34, Pa.—Booth 1136

In attendance: E. B. Frame, J. M. Carroll, J. C. Underwood, C. E. Fink.

Exhibiting: Oil burner nozzles, oil burner accessories, water spray nozzles, corrosion resistant sprays.

MOORE CO., THE, 424 Nichols Rd., Plaza Station, Kansas City 12, Mo.—Booths N-444, N-543

MORRISON PRODUCTS, INC., 16816 Waterloo Rd., Cleveland 10, Ohio—Booth 936

In attendance: Thompson Morrison, Hunter Morrison, Jr., Al Galaba, W. H. Tonner, R. W. Leverenz.

Exhibiting: Complete assemblies and component parts of belt drive and direct-connected blowers. Unit drive and "SW" line of blowers will be featured.

MORRISON STEEL PRODUCTS, INC., 601 Amherst St., Buffalo 7, N. Y.—Booths 610, 614

In attendance: L. Hine, W. Duffy, D. Grant, O. Berg, M. Strach, J. Hayes, S. Morrison, M. J. Kohnstamm, C. O. Rainey, A. Swartzmiller, M. Davies, S. Neide, O. Waite.

Exhibiting: Oil and gas "Mor-Sun" furnaces; air cooled and water cooled "Mor-Sun" central air conditioning units, first showing of complete 1957 line. New models of furnaces will be introduced.

MORTON ENGINEERING SERVICE, PAUL S., 609 Bangor Rd., Lawrence, Mich.—Booth 721

In attendance: Paul S. Morton, Mrs. Paul S. Morton, Warren H. Carrington, Mrs. Warren H. Carrington.

Exhibiting: Btu calculator, area and volume calculators (air change method), Btu calculator, area and crackage calculators (crackage method). New wage withholding tax calculators and new electrical (Kwhr) heat load calculator will be featured.

MUELLER CLIMATROL, 2005 W. Oklahoma Ave., Milwaukee, Wisc.—Booths 955, 965, 969

In attendance: H. P. Mueller, H. P. Mueller Jr., F. J. Nunlist, D. Davidson, E. Scheck, R. B. Schmidt, W. Sutherland, L. Miles, G. Hase, W. Crooker, O. Ress, E. Hill, P. Carter.

Exhibiting: Heating and air conditioning equipment. Blower coil unit, horizontal self contained air conditioner, recessed year 'round air conditioner, and highboy line will be featured, and display will mark the exhibitor's 100th anniversary.

MUELLERMIST IRRIGATION CO., 2612 S. Ninth Ave., Maywood, Ill.—Booth 211

In attendance: D. Edward Wright, Daniel E. Wright, Melvin Miller, Victor Gaddis, Martin Lynch, Ivan Leininger.

Exhibiting: "Fanjet" evaporative roof cooling system.

MULTI-VENT DIV.—see PYLE-NATIONAL CO.

MUNCIE GEAR WORKS, INC., MARVAIR DIV., Muncie, Ind.—Booth 1215

MYERS & BRO. CO., THE, F. E., 249 Orange St., Ashland, Ohio—Booth 230

MYSTIK ADHESIVE PRODUCTS DIV., CHICAGO SHOW PRINTING CO., 2655 N. Kildare Ave., Chicago 39, Ill.—Booth N-342

NATIONAL HEATER CO., INC., 2475 Doswell Ave., St. Paul 8, Minn.—Booth 1137

In attendance: D. S. Anderson, R. C. Black, G. T. Costello, R. J. Crouse, George Hatch, Whitney M. Kerr, E. W. Klein, Myron Koffman, Arnold A. Kosarin, Basil A. Kosarin, Frank S. Lappin, John A. Moore, J. L. Myers, A. L. Nicholls, P. Palmer, Herman A. Pietsch, D. L. Robb, S. F. Stewart, E. M. Tarnoff, W. Wilkinson.

Exhibiting: "National Champion" direct fired heaters, and "Therma-Flo" suspended units and duct heaters and counterflow heaters, all for oil and gas. The new suspended heater blower units and duct heaters, as well as the counterflow units, will be featured.

NATIONAL UNION ELECTRIC CORP.—see ARMSTRONG FURNACE CO.

NATIONAL-U.S. RADIATOR CORP., CYCLOTHERM DIV., 157 E. 1st St., Oswego, N. Y.—Booth 551

NATIONAL-U.S. RADIATOR CORP., DRAYER & HANSON DIV., Los Angeles 54, Calif.—Booth 811

NATIONAL-U.S. RADIATOR CORP., HEATING & AIR CONDITIONING DIV., 221 Central Ave., Johnstown, Pa.—Booths 802, 803, 811

In attendance: C. M. Baumgardner, F. S. Hudson, Jr., J. W. LeRoy, J. W. Hall, C. J. Philage, R. O. Shelkey, R. A. Hazell, S. Wolpert, R. L. Standaert, C. H. Reed, F. S. Barr, F. L. Brown, W. S. Hendricks, C. J. Regan, S. Sackol, R. B. Skipton, L. A. Smith, R. Walker, V. W. Blackney, S. Moroh.

Exhibiting: Gas boilers; oil heating units, cast iron and steel; all-fuels boilers, cast iron; "National-U.S. Packets," all-in-one home heating units; commercial steel boilers; "Queen of Scots" scotch marine boilers; cast iron and non-ferrous baseboard, cast iron and non-ferrous convectors; cast iron "Sunray" radiators; new fin tube radiation; air conditioning equipment for residential and commercial use. "National-U.S. Packet—Mark III"; "Commander" residential steel gas heating unit; "47" series cast iron oil heating unit; "Sunray" cast iron baseboard; "Floorline" non-ferrous baseboard; new fin tube radiation; "Premier" cast iron oil heating unit; "Sentinel" steel oil heating unit; "DeLuxe" gas boilers; and "Queen of Scots" scotch marine boilers will be featured.

NATIONAL-U.S. RADIATOR CORP., VIKING AIR PRODUCTS DIV., 601 Walworth Ave., Cleveland 2, Ohio—Booth 549

NATIONAL-U.S. RADIATOR CORP., also see **PACIFIC STEEL BOILER DIV.**

NELSON DIV., HERMAN—see AMERICAN AIR FILTER CO., INC.

NEW CASTLE PRODUCTS, INC.—see AIR-DOOR INC.

NEW YORK AIR BRAKE CO., THE, KINNEY MFG. DIV., 3529 Washington St., Boston 30, Mass.—Booths 1155, 1159

NEW YORK AIR BRAKE CO.—also see AU-RORA PUMP DIV.

NEW YORK BLOWER CO., THE, 3155 S. Shields Ave., Chicago 16, Ill.—Booths 325, 327

In attendance: E. E. Trickler, Bill Mathis, Bruce D. Shellstrom, Clifford Culpepper, Neil S. Booth, Fred X. Nicholson, Scott F. Rost, Joel E. Fitts, Fred C. Zimmerman, Jack B. Wakeman.

Exhibiting: New line of centrifugal heaters, new power roof ventilators, general purpose centrifugal fan, heavy duty Class III centrifugal fan, unit heaters, wholesaler and distributor items, new sectional heating and ventilating units, high pressure centrifugal fan, new "Bell-Ex" centrifugal power roof ventilator, and new "VP-Ex" propeller type power roof ventilator will be featured.

NIAGARA BLOWER CO., 405 Lexington Ave., New York 17, N. Y.—Booth 8

In attendance: Paul H. Schoepflin, W. L. Offenhamer, O. F. Gilliam, R. C. Knight, R. M. Magner, J. E. Douglas, N. L. Baker, G. D. Warriner, N. B. Ward, I. F. Delehanty, B. M. Barnitz, E. M. Thompson, A. S. Leonard, R. S. Jones, D. B. Devendorf, S. O. Shashinka, Clarence Moss.

Exhibiting: "No Frost" space coolers, "Hygrol" air conditioner, high pressure steam fan heater. New equipment in the air conditioning and heat transfer specialty field will be featured.

NIAGARA FURNACE DIV., THE FOREST CITY FOUNDRIES CO., 2500 W. 27th St., Cleveland 13, Ohio—Booths 1042, 1044

In attendance: I. E. Seith, Robert Fritz, James Harrison, Wm. Spaine, Edward Mead, Otto Zeman.

Exhibiting: Gas and oil fired warm air furnaces, residential air conditioning equipment. Builders' models of gas gravity and gas forced air furnace will be featured.

NIAGARA MACHINE & TOOL WORKS, 637-697 Northland Ave., Buffalo 11, N. Y.—Booths 1109, 1111

In attendance: F. A. Reed, H. E. Carson, L. L. Hock, Joseph Selan, Robert Mahaney, Robert Gaylord, W. McKale. Also W. J. Silberman of Republic Metals; and W. M. Ward, A. P. Schneider, and Norman Martin of Ward Machinery Co.

Exhibiting: 2 x 36 slip roll, combination machines, hand tools, 30 in. bar folder, lever

punch and shear, ring and circle shear, 3 x 48 in. power roll, 48 in. foot shear, air power notching and punching machine, universal power grooving machine, power table, foot brake. Although previously announced, the air power notcher and the modernized universal power groover will be exhibited for the first time.

NORMAN PRODUCTS CO., 1150 Chesapeake Ave., Columbus 12, Ohio—Booths N-231, N-233

In attendance: J. C. Booton, R. G. Millikan, E. A. Norman, N. G. Campbell, E. C. Johnson, N. R. Foloky,

Exhibiting: "Southerner" horizontal, duct furnace, residential conversion burner, industrial conversion burner. "Three-Sixty" sealed combustion system, gas fired overhead forced convection heater with electric ignition system, will be featured.

NYE TOOL CO., 4120 Fullerton Ave., Chicago 39, Ill.—Booth 1237

In attendance: A. A. Erickson, Joseph Nischan, Charles Odds, Walter Fuller, Walter Pastryk, Harold Jorpeland.

Exhibiting: Pipe tools.

OLIN MATHIESON CHEMICAL CORP., East Alton, Ill.—Booth N-309

In attendance: U. R. Jaeger, Ken Stover, R. E. Bockhorst, N. Keith, H. Grote, P. Brett.

Exhibiting: Evaporator panels and heat exchanger components.

OLIN MATHIESON CHEMICAL CORP., — also see **RAMSET FASTENING SYSTEM**

OLSEN MFG. CO., THE C. A., Elyria, Ohio —Booths 832, 933

OMARK INDUSTRIES, 5001 S.E. Johnson Creek Blvd., Portland 6, Ore.—Booth N-328

In attendance: Fred L. Catiller.

Exhibiting: "Drive-It" powder actuated tools, hammer drive tool line.

ORR & SEMBOWER, INC., Morgantown Rd., Reading, Pa.—Booth 10

In attendance: F. H. Klein, W. B. Firman, E. A. Burt, H. T. Schladitz, V. N. Decerchio, P. E. O'Hara, L. A. Roethe, R. C. Currie, H. J. Todd, W. P. Williams, S. D. Distelhorst.

Exhibiting: "Powermaster" and "Power-Pak" automatic boilers; "O&S" fuel burning systems.

OWENS-CORNING FIBERGLAS CORP., Toledo 1, Ohio—Booth 217

PACIFIC STEEL BOILER DIV., NATIONAL-U.S. RADIATOR CORP., 944 Ash St., Johnstown, Pa.—Booth 810

In attendance: T. B. Focke, C. M. Baumgardner, E. J. Grady, H. M. Gibb, E. F. Hackett, W. E. Everham, W. D. Braden, J. A. Hallinan.

Exhibiting: Scotch type boiler-burner unit, "Lo-Set" boiler-burner, plate flue boiler-burner unit, "Built-on-the-Job" boilers.

PARAGON ELECTRIC CO., 1600 Twelfth St., Two Rivers, Wisc.—Booth 544

In attendance: Warren A. Petersen, John H. Otis, Wm. C. Leff.

Exhibiting: Time controls.

PATTEN CO., J. V., 550 DeKalb Ave., Sycamore, Ill.—Booth 845

In attendance: Don C. Patten, John H. Patten, Wallace Landau, S. R. Roberts, J. F. Helming, Carl W. Kimball, Don Holverson.

Exhibiting: Oil fired and gas fired residential heating equipment; combination heating-cooling units; residential cooling equipment, air or water cooled. New line of air cooled, self-contained, suspended type central air condi-

tioning units for attic or basement wall installation, in three sizes (17,000, 22,000, and 38,000 Btu per hr); and new "DeLuxe" line of oil or gas fired warm air furnaces with streamlined front closures will be featured.

PATTERSON-KELLEY CO., INC., THE, 105 Warren St., East Stroudsburg, Pa.—Booth 859
In attendance: Charles E. Drake, John A. Clark, Frank Lankow, Frank J. Thoma.

Exhibiting: Type "DW" water-to-water heat exchanger, copper lined storage water heater, "Type FO" internal fin "Freon" chiller.

PEERLESS CORP., THE, Ludlow Ave., Indianapolis 7, Ind.—Booth 555

In attendance: O. U. Mutz, H. W. Mutz, T. R. Mutz, D. H. Williams, R. C. Whallon, T. Z. Clifford.

Exhibiting: "Clima-Pump" air source heat pump, "Clima-Twin Aire" air cooled air conditioners, "Versat-All" gas and oil warm air furnaces. The heat pump for year 'round heating and cooling in a single all-electric unit will be featured.

PEERLESS ELECTRIC CO., THE, 1401 W. Market St., Warren, Ohio—Booth 607

In attendance: Walter A. Curtis, Lester C. Mills, Robert E. Lininger, Richard Thompson.

Exhibiting: Fans, blowers and ventilating equipment, and featuring new centrifugal roof ventilator.

PEERLESS OF AMERICA, INC., 5830 N. Pulaski, Chicago 30, Ill.—Booth 751

PEERLESS PUMP DIV., FOOD MACHINERY AND CHEMICAL CORP., 2005 Northwestern Ave., Indianapolis, Ind.—Booth 1219

PENN CONTROLS, INC., Goshen, Ind.—Booth 1025

In attendance: Carlos Morgan, Harold Gray, Jim Moravec, F. X. Fessler, L. J. Krause, Wm. Bowen, R. H. Luscombe, K. W. Cash, A. Boyd Ralph, P. O. Penn, R. L. Ratliff, Don Peters, Jud Forbes, Gene Price, A. W. Barr, Ed Corbett, George Sanders, James Garrett, Frank Halloran, Richard Young, Harold King, Ken Fisher, D. F. Belnap, Ivan Stepnich, Emile Tassin, Gordon Manista, O. E. Johnsonbaugh, Frank Goulding, R. S. Penn, Wm. Few, Howard Shilling, Al Walter, Jim Kinney.

Exhibiting: Automatic controls for heating, air conditioning and cooling. New oil burner stack, switch; new thermostat (heating, cooling, air conditioning); new warm air controls; and new hot water controls will be featured.

PENNSYLVANIA FURNACE AND IRON CO., Pine at Fourth, Warren, Pa.—Booths 128, 130

PERFECTION INDUSTRIES DIV. OF HUPP CORP., 1135 Ivanhoe Rd., Cleveland, Ohio—Booths 1149, 1151

In attendance: Carl W. Millsom, Wm. H. Smith, H. C. Erhard, Marion Miller, Allen B. MacLaren, Fred Stahl, Glenn Crowner.

Exhibiting: Oil and gas fired forced warm air furnaces, "Tuckaway" self-contained attic cooling units, air-cooled residential and commercial cooling units. The self-contained attic cooling units will be featured.

PEROLIN CO., INC., THE, 1112 W. 37th St., Chicago 9, Ill.—Booth N-418

In attendance: H. R. Strong, W. H. Carls, S. J. Wazuicki, Paul E. Stern, C. D. Hutchinson.

Exhibiting: "Formet" water system treatment, algae preventive, dry acid cleaner, fuel oil treatment. Crystals for the elimination of scale and corrosion in air conditioning systems and/or hot water systems will be featured.

PETRO, DIV. OF IRON FIREMAN MFG. CO., 3170 W. 106th St., Cleveland 11, Ohio—Booth 125

In attendance: Jess R. Crews, W. J. Hegan, C. E. Bailey, G. T. Kaufman, G. A. Mat-

tinik, J. E. O'Donnell, N. Kaptain, G. A. Moore.

Exhibiting: Packaged domestic boiler, rotary burner with air register, glass lined oil fired water heater, pressure burner for No. 5 oil, combination gun burner for gas and light oil, forced draft combination gun burner.

PHILLIPS DRILL CO., U. S. 12-Liberty Trail, Michigan City, Ind.—Booth N-421

In attendance: R. E. Dieterich, J. F. Wagner, M. J. Sepanski.

Exhibiting: Self-drilling expansion shells; electric motor hammers. New trade name and promotion program will be featured.

PITTSBURGH PLATE GLASS CO., FIBER GLASS DIV., 1 Gateway Center, Pittsburgh 22, Pa.—Booths 1247, 1249

In attendance: Orville Miller, Jr., R. R. Pryor, R. M. Hoffman, J. M. Collins, E. D. Kobilis, R. F. Siefert.

Exhibiting: Air filters, air conditioner filter pads, fiber glass pipe insulation, fiber glass duct liner, fiber glass duct wrap. New fiber glass air conditioner filter pad, "one size fitting any type of air conditioner", and new fiber glass one-piece pipe insulation, will be featured.

PITZ FOUNDRY, INC. — see AMERICAN HYDROVAC DIV.

PLIBRICO CO. — see INSUL-LYTE CORP. DIV.

PLUMBING, HEATING, AIR CONDITIONING WHOLESALER, 92 Marling Ave., Tarrytown, N. Y.—Booths 1239, 1241

Exhibiting: Publication.

PLUMBING & HEATING BUSINESS, 130 E. 59th St., New York 22, N. Y.—Booth 411

Exhibiting: Publication.

PORTABLE ELECTRIC TOOLS, INC., 320 W. 83rd St., Chicago 20, Ill.—Booth N-211

In attendance: John Baker, George W. Weatherby, Dick Bigelow, Howard R. Arnold, Ross Norton, Wm. Rosenstiel, John Tracy.

Exhibiting: $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ in. portable electric drills; jig saw; electric trimmer; grinders; impact wrench $\frac{1}{2}$ in. sq. dr; $\frac{3}{4}$ in. saw; $\frac{6}{16}$ in. safety clutch saw; $\frac{6}{16}$ in. automatic clutch saw; orbital sanders; drill kits; "Spin-a-Brush" paint brush cleaner. New model impact wrench, automatic safety clutch saws, and electric trimmer will be featured.

PORT CITY MACHINE & TOOL CO., 3590 Airline Rd., Muskegon, Mich. — Booth N-410

In attendance: Carl A. Johnson, Jr., Harry E. Gibson.

Exhibiting: "Mipatan" electric hammer, "Mipatan" pneumatic hammer.

POTTER & BRUMFIELD, INC., Princeton, Ind. — Booth 314

POWDER TOOL SALES CO., 5349 W. Madison, Chicago, Ill.—Booth N-328

POWER-FLAME DIV. — see SIEMON MFG. CO.

POWERLINE FAN CO., DIV. CHELSEA PRODUCTS, INC., 639 South Ave., Plainfield, N. J.—Booth 744

In attendance: G. J. Read, A. E. Ott, J. Sutton, J. Wolfe, J. Prete, R. Van Atta, L. Yale.

Exhibiting: Industrial fans, blowers, ventilation equipment and accessories.

POWERS REGULATOR CO., THE, 3400 Oakton St., Skokie, Ill.—Booths 944, 1045

In attendance: H. C. Mueller, J. W. Powers, K. M. Stevens, F. A. Murray, D. Ladd, C. A. Gustafson, A. J. Keating, D. H. Thor-

burn, E. R. Bowman, T. J. Smith, J. C. Scott, W. L. Doty.

Exhibiting: "Flowrite" diaphragm valves, packless radiator valves, heating-cooling thermostats, "Powerstroke" damper motors, hygrostats, static pressure regulators, remote bulb thermostats, dial thermostats, indicating regulators, recording-controlling regulators.

PRAT-DANIEL CORP. — see THERMOBLOC DIV.

PREMIER FURNACE CO., Dowagiac, Mich.—Booth N-311

In attendance: Dick Judd, Bernie Lagerborg, Ralph Waldo, Joe Ruetty, Dick Houden, Dick Wallerstedt.

Exhibiting: Year around air conditioners; "Fan-Air" baseboard diffusers, introducing the 1957 improved line.

PRICE & RUTZBECK, P. O. Box 30, Hayward, Calif.—Booth N-433

In attendance: John D. Rutzebeck, William A. Crosbie, Ben Richard, Warren Frenell, Jack Battelle, Ray Grimes, Joe Capen, Sam Barnett, Charles Mangieri, Earl T. Peck.

Exhibiting: "Planetor Magic Feed" boring bits, "Grips Rite" angle heads, "Handy" angle saws.

PRIMOR PRODUCTS DIV., BORG-WARNER CORP., 2011 W. Beecher Rd., Adrian, Mich.—Booth 768

In attendance: T. H. Smoot, R. M. Herbert, A. D. Rumsey, D. C. Bellman.

Exhibiting: Air cooled and water cooled central air conditioning equipment; air cooled and water cooled chillers; evaporators; condensers. $1\frac{1}{4}$ and 3 hp air cooled hermetic units and 2, 3 and 5 hp propeller fan condensing units will be featured.

PRITCHARD AND CO., J. F., OF CALIFORNIA, 4625 Roanoke Pkwy, Kansas City 12, Mo.—Booth N-343

In attendance: Karl E. Johnson, W. R. Roeyer, Hugh Robertson, Richard Brent, B. B. Farmer, Glen H. Collins, George Westall, John Sears, R. J. Clark, Fred Richeda, Louis B. Hoffman, Harry B. Hoffman, Vance A. Morrow, T. E. Macfie, W. L. Woodall, Gordon Morrow, J. L. Brownlee, R. L. Craig, J. I. Marquard, William Bodie, B. E. Anderson.

Exhibiting: "LoLine" cooling tower, series B and series R, the first being greater in height and with greater capacity for air conditioning and water cooling for industrial processes.

PROPORTIONEERS, INC. — see B-I-F INDUSTRIES, INC.

PROX CO., INC., FRANK, 1201 S. First St., Terre Haute, Ind.—Booth 127

In attendance: C. R. Goodrich, I. B. Hutchison, Carl Penningroth, Jr., A. D. Parish.

Exhibiting: Cast iron sectional boiler.

PULLMAN VACUUM CLEANER CORP., 25 Buick St., Boston 15, Mass.—Booth 973

In attendance: Edgar A. Green, Robert J. Berns, Norman Ruby, Lin Krause.

Exhibiting: Furnace cleaners. A "Neverclog" bag that has been used in 4000 cleanings will be featured, and there will be a special "vacuum box" filled with paper money, visitors being asked to guess the correct amount.

PYLE-NATIONAL CO., THE, 1334-58 N. Kostner Ave., Chicago 51, Ill.—Booths 1058, 1060

In attendance: R. S. Geocaris, R. K. Sherman, R. A. Meck, L. W. Burns, F. R. Grysk, W. E. Wagner, R. W. Ritsel.

Exhibiting: Air diffusers, "Multi-Vent," combination lighting fixture and air diffuser. New "Multi-Vent" troffer will be featured.

QUALITY SPECIALTY CO., INC., 28th St. & Lincoln Ave., Camden 5, N. J.—Booth N-413

In attendance: Carl Jay, Jules Jay, Bernard Jay, Thomas J. Gunning, Sidney Schwartz, Morris Portnoy.

Exhibiting: "Q S Ventflo" control valves, "Q S" purge and balancing valves, automatic air vents and vacuum breaker and tank drain combination.

QUICKDRAFT CO., P. O. Box 87, Canton, Ohio—Booth 717

QUINCY STOVE MFG. CO., THE, 825 S. Front St., Quincy, Ill.—Booth 247

In attendance: Herman D. Tow, K. W. Fischer, Chas. F. Bahr, Henry L. Hudson, Dean Gilchrist, Frank Conklin, Allan Swartzmiller, Eugene Brown, Wm. L. Rector, Al DuRant.

Exhibiting: "Monogram" wall and recessed heaters (oil and gas). Forced air high-boy and counterflows, and low-boy model (oil and gas), will be featured.

QUINCY STOVE MFG. CO., THE, RADIANT-AIRE DIV., 825 S. Front St., Quincy, Ill.—Booth N-214

In attendance: W. F. Shaughnessy, Dean Gilchrist, Herman D. Tow, Chas. F. Bahr.

Exhibiting: Oil and gas warm air furnaces — hi-boy, counterflow, low-boy. Assets of Radiant-Aire Corp. have been purchased by Quincy Stove, and this is the first showing of Radiant-Aire products manufactured by Quincy.

R. C. S. TOOL CORP., 227 E. Front St., Bloomington, Ill.—Booth 1038

In attendance: T. M. Sweeney, J. A. Kinsella, H. G. Johnson, W. D. Bogh.

Exhibiting: "Super Saw" portable all purpose power saws for roughing-in work; attachment for $\frac{1}{4}$ in. heavy duty electric drills; "Super Saw" blades. "SuperSaw" model 250 integral unit, with self contained electric motor, will be featured.

RADEX CORP., 2076 Elston Ave., Chicago 14, Ill.—Booth N-505

In attendance: R. M. Cook, R. C. Black, G. T. Seil, M. J. Kaufman.

Exhibiting: "Dustronic" electrostatic precipitators; "Dustronic" air circulator, "Smog-Free" air cleaners.

RADIANT-AIRE DIV. — see QUINCY STOVE MFG. CO., THE, RADIANT-AIRE DIV.

RADIANT UTILITIES CORP., 8817 18th Ave., Brooklyn 14, N. Y.—Booths 1128, 1130

In attendance: Arthur A. Marcus, Julius S. Goldberg, Joseph Bloom.

Exhibiting: Oil burners, oil and gas fired water heaters, sump pumps, submersible sump pumps, laundry tray pumps, Gas water heater will be featured.

RADIO CORP. OF AMERICA, COMMERCIAL ELECTRONIC PRODUCTS, Camden 2, N. J.—Booth N-208

RAMSET FASTENING SYSTEM, 12117 Berea Rd., Cleveland 11, Ohio—Booth N-447

In attendance: C. Tryon, D. Moller, A. Masters, R. Kopf, J. Schwaller.

Exhibiting: Powder actuated tools: "Shure-Set" hammer-in fastening tool.

RANCO INC., 601 W. Fifth Ave., Columbus 1, Ohio—Booth N-347

In attendance: R. W. Bartholomew, C. E. Boren, E. V. Dunbar, H. M. Goldberg, C. J. Hasbrook, C. V. Haucisen, A. C. Homeyer, H. M. Laird, James Manecke, J. D. Merkle, F. G. Slagel, C. M. Spielman, M. S. Vidis, B. H. Weber, C. E. Whipp.

Exhibiting: Commercial controls, pressure and temperature operated for compressor and unit application; and smaller sized controls, pressure operated only, for panels used on central heating and cooling systems. Bypass valves and

reversing valves for 1 to 2 ton window unit application, and larger capacity reversing valves for 3 to 7 ton packaged air conditioning units for both heating and cooling that are solenoid operated and automatic in change over. Temperature controls for window air conditioner units for automatic cycling; fan operation with an auxiliary switch attached to outside cycling control case or with fan switch incorporated inside the control cover; and controls for de-icing or defrosting air conditioning units, whether window type or larger tonnage units, will be featured.

RANDALL GRAPHITE BEARINGS, INC.
Greenlawn & Lake Sts., Lima, Ohio—Booth 310

In attendance: W. E. Dickerson, K. W. Strunk, Ray Chaney, Charles Esch, Jack Van Buskirk, Carl Peterson, Harry Koeckritz, Howard Dickerson, Jerry Miller, R. W. Baggott.

Exhibiting: Bronze sleeve bearings and pillow blocks. Duplex bearing assembly will be featured.

READY-POWER CO., THE, 11231 Freude Ave., Detroit 14, Mich.—Booth 1145

In attendance: H. D. Gumpfer, W. S. Jewell, N. K. Hall, Charles E. Berlin, G. Hicks Edwards, E. P. Schumaker, Arthur R. Seidel, F. E. Hayden, William Wendt.

Exhibiting: Natural gas engine driven compressor-air conditioning unit, which is fully automatic with modulating operation of speed and cylinder loading and unloading.

RECORD CORP., 7250 E. Slauson Ave., Los Angeles 22, Calif.—Booths N-506, N-507

In attendance: H. T. Jarvis, D. D. Wile, E. V. Jarvis, H. L. Quinn, S. Singer, Hal Jarvis.

Exhibiting: Multizone air conditioners with 40 sq ft and 6.6 sq ft face areas; "Dri-Fan" evaporative condensers with modulating dampers; steam, water and DX coil air conditioning surface; and ceiling blower coils with "Vapomatic" low temperature defrosting system. Modulating dampers for evaporative condensers, controlled by a thermostat in the condenser water to regulate amount of air through the condenser and keep water temperature constant, will be featured.

REDMOND CO., INC., Monroe St., Owosso, Mich.—Booth 1068

In attendance: J. W. Tweedy, M. J. Koenig, R. Burns, R. Batchelor, H. Mulbar, J. Pichiotino, A. Rozema, R. MacKenzie, R. Curtis, K. Heiberg, T. Ginther.

Exhibiting: Complete line of fractional horsepower electric shaded pole motors, and blowers.

REFLECTAL CORP., SUBSIDIARY OF BORG-WARNER CORP., 310 S. Michigan, Chicago 4, Ill.—Booth 229

In attendance: R. E. Runcan, E. D. Foster.
Exhibiting: "KoolShade" sun screen.

REFRIGERATION & AIR CONDITIONING CONTRACTORS ASSN., 228 N. LaSalle St., Chicago 1, Ill.—Booth N-243

REFRIGERATION APPLIANCES, INC., 923 W. Lake St., Chicago 7, Ill.—Booth N-422

In attendance: E. Niederer, Frank A. Klaas, Don Niederer, H. W. Morgan, Don Croeger, E. H. Niederer.

Exhibiting: Air cooled condensers, "Comfort Master" air handling units, "V" bank furnace bonnet coils, downdraft residential air conditioning coils, horizontal residential air conditioning coils.

RELIANCE ELECTRIC AND ENGINEERING CO., 1088 Ivanhoe Rd., Cleveland 10, Ohio—Booths N-213, N-215

In attendance: R. O. Herbig, R. P. Weimer, K. E. Carter, M. E. Schlenker, J. O'Keefe, T. J. Lisy, J. M. Biggar, C. E. Hill, E. S. Whitlock, G. E. Zorini, D. L. Prowse, M. Sarley, A. G. Conway, D. K. Bogart.

Exhibiting: Part winding start motor (feature display) design to reduce inrush currents cheaply; air-over a-c motor, self-cooled motor, operating in fan air stream; d-c motor, largely used on air conditioned railroad cars and reefers; complete line of totally protected a-c motors; "Reeves" motor pulley, variable speed for pump applications.

REMINGTON ARMS CO., INC., 939 Barnum Ave., Bridgeport 2, Conn.—Booth N-338

In attendance: C. J. Turner, A. G. Lane, B. L. Warnes, D. D. Doerge.

Exhibiting: Stud driver, model 455; "Mighty-Mite" stud driver, Model 456.

RESEARCH PRODUCTS CORP., 1015 E. Washington Ave., Madison, Wisc.—Booths 1024, 1026

In attendance: P. N. Dutton, G. H. Piering, H. E. Whelpley, J. E. Walz, C. B. Rowe, E. F. Rothe, D. O. Bender, K. H. Lindquist, J. M. Roudeshush, F. W. Carlstrom, V. Hellenbrand, Norb Krohn.

Exhibiting: "Aprilaire" automatic electric humidifier, industrial and domestic; "E Z Kleen" air filters; grease filters; paint arrestors; "Coolpad"; formed elements. The automatic electric humidifier will be featured.

REVCOR, INC., 251 Edwards St., Carpentersville, Ill.—Booth 116

In attendance: John Reichwein, Joseph Kocher, R. F. McCall, R. I. Trumble, M. J. Fabbri, Tony Cascade, Don E. Arnold, John Jubell, Dave Jubell.

Exhibiting: "Blastaire" and "Revcor" blower wheels, blower wheel housings. New design double inlet blower wheels featuring single center disc to reduce weight will be featured.

RHEEM MFG. CO., 7600 S. Kedzie Ave., Chicago 29, Ill.—Booth 826

In attendance: J. L. Hoyer, R. Gilbert, P. Fetzek, J. Brownell, J. Houston, J. Curfman.
Exhibiting: Residential heating and air conditioning equipment; commercial air conditioning units, room coolers; "Economy" attic air conditioning units. Glass lined furnace line, new furnace line designed for cooling, new "Rheemaire" air conditioning units, and new commercial air conditioning units will be featured.

RHEEM MFG. CO. — also see RICHMOND PLUMBING FIXTURES DIV.

RICHMOND PLUMBING FIXTURES DIV., RHEEM MFG. CO., P. O. Box 111, Metuchen, N. J.—Booth 307

In attendance: John J. Hall, George B. Chandless, Jr., V. B. Churchill, F. Leonard, L. S. Maehling, E. C. Riley, E. L. Wolf.

Exhibiting: Complete line of boilers, warm air conditioners, and cooling units. "Budgeteers" with extended jackets will be featured.

RIC-WIL INC., 24 Brown St., Barberton, Ohio—Booth 508

In attendance: N. L. Mooneyham, W. F. Wood, E. S. Pandey, C. G. Van Schoor.

Exhibiting: Prefabricated insulated pipe units.

RIDGE TOOL CO., THE, 400 Clark St., Elyria, Ohio—Booths 665, 667, 669

In attendance: Walt Miller, Carl Petersen, Milo Sharp, L. C. Richardson, W. L. Parcell.

Exhibiting: Complete line of "Ridgid" pipe tools including pipe wrenches, vises, reamers, cutters, threaders, pipe and bolt threading machines, power drives and accessories. New tools to be featured include "535" pipe and bolt threading machine, "4PJ" geared threader, "65R-TC" threader, wide-roll cutter, tubing cutters.

RITE ENGINEERING & MFG. CORP., 144 S. Mission Rd., Los Angeles 33, Calif.—Booth 1269

In attendance: Eric L. Pridonoff, John E. Kasunich, Del Peterson.

Exhibiting: Water heating boiler, combination gas-oil fired; "Lime-Lite" (built-in heat exchanger) boiler.

RITTLING CORP., THE, Rittling Bldg., Buffalo 5, N. Y.—Booth 1014

In attendance: C. P. Rittling, J. B. Rittling, R. W. Rittling, R. J. Carter, F. W. Helikson, K. King, G. S. McCarthy, N. T. O'Rourke, R. Polasik.

Exhibiting: Baseboard radiation, finned tubing, cabinet convectors, unit heaters, backdraft dampers, unit ventilators, heating and cooling units.

ROBERTS-GORDON APPLIANCE CORP., 44 Central Ave., Buffalo 6, N. Y.—Booth 1115

In attendance: R. I. Warnecke, W. E. Davis, W. L. Wright, R. G. Budden, R. T. Huyck, Richard Palczynski.

Exhibiting: Furnaces—hi-boy and lo-boy, gas or oil; hot water boilers; unit heaters, up to 200,000 Btu; air conditioning, 1½, 2, 3 and 5 ton, air cooled; residential, commercial and industrial conversion burners up to 10½ million Btu.

ROBERTSHAW-FULTON CONTROLS CO., FULTON SYLPHON DIV., P. O. Box 400, Knoxville 1, Tenn.—Booth 1050

In attendance: L. S. Dysart, E. D. Rogers, G. L. Leupold, J. D. Crum, N. W. Barnes, E. T. Cato, Larry Jones.

Exhibiting: Temperature controls, packless valves, room thermostats, automatic radiator valves, expansion joints, bellows and bellows assemblies.

ROTHER ENGINEERING CO., INC., 7280 W. Devon Ave., Chicago 31, Ill.—Booth N-416

In attendance: H. S. Kuhn, R. B. Borucki, H. Robarge.

Exhibiting: Revolving joints, expansion joints, and piping compensators, the latter two being featured.

SARCO CO., INC. — SARCOTHERM CONTROLS, INC., 350 Fifth Ave., New York, N. Y. — Booth 569

In attendance: L. Barfus, A. Milnes, H. L. Simmons, T. Robert Stevens, R. L. Stewart, W. H. Worth.

Exhibiting: New "Sarco-Pak" control unit, specialties for steam and hot water heating systems, control systems, fin tube and baseboard radiation, condensate and vacuum pumps.

SCHecter Bros. Co., Hancock & Huntingdon Sts., Philadelphia 33, Pa.—Booths 1064, 1066

In attendance: Samuel Schecter, Morris Gross, Herbert First, Alan Damaset, Larry Scherter, I. Yasno, C. Roberts.

Exhibiting: Galvanized prefabricated duct, wall stack, and fittings; galvanized furnace pipe and adjustable elbows; perimeter heating fittings and pipe.

SCHNACKE, INC., 1101 N. Governor, Evansville 7, Ind.—Booth N-430

In attendance: F. C. Schnacke, James K. Ellsworth, M. J. Barnett, James E. Russell.

Exhibiting: Compressors, condensing units, 5 to 60 hp; package water chillers, 10 to 120 tons; cooling towers, 3 to 60 tons. Improved 8 cylinder compressor for applications from 30 tons to 60 tons and new type propeller cooling tower (3 to 50 tons) will be featured.

SCULLY SIGNAL CO., 174 Green St., Melrose 76, Mass.—Booths N-230, N-232

Exhibiting: "Ventalarm" signal, "Ventalarm" gage, "Scully" gage, "Unifill" test delivery connections, "Fair-Safe" monitor, nozzles and swivels for oil delivery, and other devices.

SEALMASTER DIV., STEPHENS-ADAMSON MFG. CO., Ridgeway Ave., Aurora, Ill.—Booth 134

In attendance: Charles B. Hurd, William E. Cousland, Carl King, George Marsh, Richard Glavan, Donald Schroeder.

Exhibiting: Representative line of industrial ball bearing units.

SEQUOIA MFG. CO. and SEQUOIA VACUUM SYSTEMS, 1090 Brittan Ave., San Carlos, Calif.—Booth 131

In attendance: Glenn Barnes, David Lindsey.

Exhibiting: Gas fired warm air furnaces, air cooled central type air conditioners, central vacuum systems. Central built-in vacuum cleaning system, installed by heating-sheet metal contractors, will be featured. The tank-type receptacle with motor is placed in the garage, and pneumatic 2 in. aluminum tubing extends under floors or overhead to desired locations on the floor plan, emerging at floor or low-wall inlet sockets.

SERVEL, INC., 119 N. Morton Ave., Evansville 20, Ind.—Booth 863

In attendance: R. L. Brown, R. E. Davis, A. J. DeFino, R. K. Eskew, G. O. Galloway, R. C. Marbach, L. E. Walbridge.

Exhibiting: 25 ton absorption type water chiller for air conditioning.

SHANA MFG., INC., 188 W. Randolph St., Chicago 1, Ill.—Booths 1136, 1140

SHAW-PERKINS MFG. CO., P. O. Box 285, West Pittsburgh, Lawrence County, Pa.—Booth N-209

In attendance: Howard F. Brenholts, Fred N. McConnell, George P. Baker, Eugene P. Gribble, Edward C. Davies, Jim Elchorst.

Exhibiting: Heating radiators for factories, schools, churches, hospitals, institutions, offices, homes, marine vessels, hotels, and other construction. Panel radiator with top air outlet, panel radiator with front air outlet, panel baseboard radiator (for the home, office or other applications depending on construction), "Perkins Airadiator" (primarily designed for industry), single tube panel baseboard. Heating radiator for mental and penal institutions with box type housing of heavy, closely-perforated steel which covers the interior construction to prevent tampering and insertion of foreign matter will be featured.

SIEMON MFG. CO., POWER-FLAME DIV., 1203 Main, Grandview, Mo.—Booths 743, 745

In attendance: Roland W. Brown, James Davis, Charles Jones, M. J. Murray.

Exhibiting: Power type gas burners, combination gas-oil burners.

SILENT FLAME MFG. CO., INC., Blue Point, L. I., N.Y.—Booth 311

SILVERCRAFT, INC., 130 S. Floyd St., Louisville 1, Ky.—Booth N-443

In attendance: F. C. Lewis, Eugene C. Thompson, Raymond D. Kregler, H. O. Haldeman, John M. Gent, Harold Binder, Thomas Binder, J. Konn, Harry P. Materne, S. A. Maverick, Jr., E. M. Tarnoff.

Exhibiting: "Summer Shower" water cooling towers of the induced draft type "incorporating the use of light weight aluminum and modern coatings plus conveniently located piping and electrical connections." "Power Package" assembly of motor, fan blade and guard into a single power unit will be featured.

SKUTTLE MFG. CO., 150 Summit, Milford, Mich.—Booth 529

In attendance: R. W. Geisler, K. M. Fournier, Edward H. Haugen, J. A. Webster, J. Scanell.

Exhibiting: "Humidimatic" electrically operated humidifier, permanent washable "Electron-air" air filters for furnaces and air conditioners, and "Humidex" tablets for preventing rust and corrosion in humidifiers.

SLANT-FIN RADIATOR CORP., 87-49 130th St., Richmond Hill 18, N. Y.—Booth 439

In attendance: Alvin Buschel, Melvin Dubin,

Milton M. Brooks, Lewis Davidson, Robert Sweiger.

Exhibiting: Commercial finned tube radiators, residential baseboard radiation, finned tube for special application. "Steel-Pak" 1 1/4 in. IPS packaged baseboard; stainless steel, all aluminum, and wrought iron finned tube radiators; and "Low-Line" enclosures will be featured.

SMITH CO., INC., THE H. B., Westfield, Mass.—Booth 707

SMITH CORP., A. O., 3533 N. 27th St., Milwaukee 1, Wisc.—Booths 1108, 1110

In attendance: J. W. Burleson, J. S. Robinson, D. V. Coon, D. D. Williams, C. L. Hewitt, Jr., K. H. Flint, C. R. Thorpe, W. F. Manthei, C. W. Schulz, F. J. Burbank, Walter Bogusz, C. B. Giddings, C. G. Fohey, T. C. King, H. G. Merkel, J. L. Stewart.

Exhibiting: Gas and oil fired warm air home heating units, year 'round home air conditioners, summer air conditioner units and home heating boilers.

SNAPPY INC., 620 W. Main, Detroit Lakes, Minn.—Booth N-320

In attendance: Leroy E. Anderson, Ray Powers, Ken Swift, Walt Nash.

Exhibiting: Furnace fittings, take-offs, drawbands. Pipe connectors and sheet metal hole cutter will be featured.

SNIPS, 5707 W. Lake St., Chicago 44, Ill.—Booth N-245

SOUTHWEST MFG. CO., 141 S. Elliott, Aurora, Mo.—Booths 226, 228

In attendance: B. T. Church, Leonard Bisby, Edward Marcum, John McCormick, Wayne West, Chas. A. Dillon, Joe Fisher.

Exhibiting: Gas fired furnaces—forced air; hi-boy, lobby, horizontal, counterflo; gas fired floor furnace and recessed wall heaters; add on 2, 3 and 5 ton air-cooled condensers; evaporative coolers.

SPENCER HEATER, LYCOMING DIV. — AVCO, Williamsport, Pa.—Booths 639, 641

In attendance: E. T. Boardman, C. W. Shaffer, R. R. Adams, K. E. Schooley, C. R. Miller, L. B. Gorman.

Exhibiting: "LW" low waterline commercial steel boiler, "Suburban" oil and "Rancher" gas fired residential units.

SPENCER THERMOSTAT DIV. — see METALS & CONTROLS CORP.

SPI-ROL-FIN CORP., 133 Greenwood Ave., Pequannock, N. J.—Booth 968

In attendance: F. R. Attwood, M. B. Belline, D. Attwood, Philip Orr, C. Rodkey, H. Higgins, N. J. Driscoll, T. H. Wirth, R. C. Edwards, E. A. Boguez.

Exhibiting: Baseboard radiation, oil and gas fired residential steel boilers, water heaters, industrial fin-pipe radiation, room air conditioners, water cooled condensers for air conditioning and refrigeration. Air cooled condensers for air conditioning will be featured.

SPORLAN VALVE CO., 7525 Sussex Ave., St. Louis 17, Mo.—Booth 1254

In attendance: H. F. Spoehrer, W. T. Carmody, W. P. Wischmeyer, J. T. Barry, W. H. Krack, D. B. Rentschler, M. D. McNaney, C. C. Grote, and territorial sales engineers.

Exhibiting: Thermostatic expansion valves, refrigerant distributors, solenoid valves, "Catch-All" filter driers, "Level-Master" control, 75 and 100 ton filter driers will be featured.

SPRAGUE ELECTRIC CO., North Adams, Mass.—Booth 516

SQUARE D CO., 4041 N. Richards, Milwaukee 12, Wisc.—Booth 737

In attendance: Edmonds Love, W. E. Helle, Frank Howard, G. G. Thorpe, J. B. Schifflin, L. M. Maresch, J. E. Wozniak, W. E. Foote.

C. A. Metz, M. L. Johnson, J. W. Coughlin.

Exhibiting: Air conditioning and refrigeration control; pump control featuring working model of Class 9038; mechanical alternator, magnetic and manual; starters, disconnect switches and pushbutton stations. Class 9001 type C46 and C47 new two and three position selector switch available for flush mounting or in Nema I enclosure, and Class 9038 type CG and DG screw-in and flange mounted mechanical alternators for closed tank duplex pump systems will be featured.

STANDARD INSTRUMENT CORP., DIV. OF HEAT-TIMER CORP., 657 Broadway, New York 12, N.Y.—Booths 336, 338

STANDARD REFRIGERATION CO., 3535 W. Fillmore St., Chicago 24, Ill.—Booths N-432, N-434

In attendance: Harry A. Goldberg, Herman M. Goldberg, Richard R. Levin, Robert L. Rose, Russell E. Cook, Ralph E. Porter, Dwight D. Orr, Bruno A. Jaskulski, Trudy A. Sichel.

Exhibiting: Refrigeration condensers, liquid receivers, heat exchangers, parts.

STANDARD STAMPING & PERFORATING CO., 3131 W. 49th Pl., Chicago 32, Ill.—Booth 636

In attendance: Lloyd Stone, William Ramquist, Andrew La Vela, Robert Nickels.

Exhibiting: Registers and grilles.

STA-RITE PRODUCTS, INC., Delavan, Wisc.—Booth N-442

In attendance: R. M. Hayes, R. H. Olson, J. S. Petrolino, J. H. Matson.

Exhibiting: Centrifugal pumps, vertical turbines, regenerative turbines, self-priming centrifugals. New 2, 3, and 5 hp all-purpose centrifugals, and new series of self-priming centrifugal pumps, will be featured.

STEINEN MFG. CO., WM., 43 Bruen St., Newark 3, N. J.—Booths 329, 331

In attendance: Robert W. Hundley, Jesse Tankel, Chris Jensen, Jr., C. B. Wilson, Thorne House, Bruce McLouth, Ed Hucksins, George Greulich, Alfred Greulich, George Heath, Howard Weller, John Weller, Paul O'Kane.

Exhibiting: "Mirror Finished" nozzles, draft regulators, ignition electrode assemblies. New line of draft regulators will be featured.

STEPHENS-ADAMSON MFG. CO. — see SEALMASTER DIV.

STERLING RADIATOR CO., INC., Westfield, Mass.—Booth 709

STEWART MFG. CO., INC., Grove Ave., Cedar Grove, Essex County, N. J.—Booth 50

In attendance: W. J. Fembleaux, F. J. Stewart.

Exhibiting: Air conditioning grilles and registers.

STEWART-WARNER CORP., HEATING & AIR CONDITIONING DIV., Lebanon, Ind.—Booths 1150, 1251

In attendance: William E. Judd, Herman E. Winkler, Walter E. Blake, Walter R. Leander, Norman J. Gill.

Exhibiting: Gas and oil furnaces, remote air conditioning equipment. Two new lines of furnaces, the "MB" and the "WIZ", "designed to meet demands of present day markets," will be featured.

STODDARD INDUSTRIES, INC., 1545 Kingsbury St., Chicago 22, Ill.—Booth 237

In attendance: Ford Stoddard, J. B. Blanton, Hazel Kline, C. A. Perlin.

Exhibiting: "Lifetime Dust-magnet" electrostatic filters. Photomicrographs proving electrostatic dust pick-up will be featured.

STRATTON & TERSTEGGE CO. — see ANCHOR DIV.

STRONG, CARLISLE & HAMMOND CO., 1392 W. 3rd St., Cleveland 13, Ohio—Booth 975

STURTEVANT DIV.—see WESTINGHOUSE ELECTRIC CORP.

SUNDSTRAND ENGINEERING CO., 1325 Seventh St., Rockford, Ill.—Booth 737

In attendance: Rupert H. Gustafson, Charles B. Bendix, Matt Miller, Frank Basler.

Exhibiting: Complete line of domestic oil burners, 0.65 to 15 gph. "Model SS" oil burner for application with boiler and furnaces as original equipment will be featured.

SUNDSTRAND HYDRAULIC DIV., 2210 Harrison Ave., Rockford, Ill.—Booths 617, 619

In attendance: B. F. Olson, L. H. Schuette, A. H. Swenson, C. W. Lang, B. L. Douglass, R. W. Kiefer, J. F. Griffey, R. E. Stevens, B. L. Soderberg, J. F. Nelson, J. R. Holmin, S. Ferraro, R. W. Erikson.

Exhibiting: One and two-stage high pressure fuel units, operating; two-stage air-oil low pressure fuel unit, operating. Constant speed truck refrigeration drive will be featured.

SUN-RAY BURNER MFG. CORP., 139-24 Queens Blvd., Jamaica 35, N. Y.—Booths 1221, 1223, 1225

In attendance: Gabe M. Marin, Alfred Metzger, Alfred Luf, Robert Adcock, Jack Maxwell, Joseph Bierwirth, Frank Sieffert, Chick Meehan, Lester Baughman, Burt Vickery, William Oliver.

Exhibiting: Complete line of high pressure gun-type oil burners from 0.5 to 22 gph for Nos. 2, 4 and 5 fuel oil; four models of fuel oil transfer pumps.

SURFACE COMBUSTION CORP.—see JANITROL HEATING & AIR CONDITIONING DIV.

SYNCHRONOUS FLAME, INC., North Main St., Walworth, Wisc.—Booths 522, 524, 526, 528

SYNCHRONOMATIC CORP., 1141 Tenth St., Watertown, Wisc.—Booth 343

In attendance: H. M. Stillman, George Day, Ted Jaye, Jim Jaye, Frank Cline.

Exhibiting: Oil-gas furnaces and air conditioners. New "Meridian" oil and gas fired furnaces adaptable to cooling will be featured.

TACO HEATERS, INC., 1160 Cranston St., Cranston 9, R. I.—Booth 1021

In attendance: J. Balter, R. H. Chaffee, W. P. Haney, T. J. Wolanski, M. Stehrenberger, H. Spring, P. G. Leddy, W. E. Johnson, J. H. White, R. T. Schoerner, V. F. Callahan, G. L. Benjamin, R. Monahan, I. W. Chase, R. H. Stevenson.

Exhibiting: Hot water heating specialties—hot water circulating pumps, "Flochecks", air scoops, steam valves, hot water valves, "MP" series pumps, "# 170" series centrifugal pumps.

TECUMSEH PRODUCTS CO., Tecumseh, Mich.—Booth 1114

In attendance: District managers from district offices in Great Neck, L. I., N. Y.; Dallas; St. Louis; Los Angeles; Atlanta; Chicago; Adrian, Mich.; and Seattle, as well as personnel from plants at Tecumseh, Mich. and Marion, Ohio, including F. G. Purcell, D. J. Bowen, P. G. Colgrove, W. Macbeth, A. S. Russell, E. D. Halsey, W. W. Higham and H. M. Kelso.

Exhibiting: Full line of hermetic compressors from 1 to 5 hp for residential air conditioning; selected compressors for window air conditioners. New "Rotalock" valves are included on all larger models, "allowing simple interchange between valves and tubes in the factory or field." The valve or tube may be set and locked in any location

through 360 deg. eliminating compound or short bends.

TEMCO, INC., 4101 Charlotte Ave., Nashville, Tenn.—Booths 625, 627, 629

In attendance: Cecil B. Oakley, Lee W. Rasch, William H. Ferriss.

Exhibiting: Gas floor furnaces, gas wall heaters, gas room heaters, gas warm air furnaces with combination air conditioning, gas unit heaters. Wall heater with draft relief built into heat chamber and requiring no draft hood, and with blower attachment to provide rapid circulation of heated air, available for single as well as dual wall models, will be featured. as will air conditioning equipment with pre-charged lines and pre-charged components, including suspended air-cooled air handling unit for commercial applications, and 2 hp and 4 hp self-contained attic units with pre-fabricated duct work.

THATCHER FURNACE CO., Center St., Garwood, N. J.—Booth 915

In attendance: Carl Sahler, R. M. Cook, M. C. Beard, S. B. Leigh, Jack Price, W. J. Klotzbach.

Exhibiting: Representative line of oil and gas fired winter air conditioners and boilers; air and water cooled summer cooling units. New gas fired winter air conditioner will be featured.

THERMO-BASE DIV.—see GERWIN INDUSTRIES, INC.

THERMOBLOC DIV., PRAT-DANIEL CORP., 2 Meadow St., So. Norwalk, Conn.—Booth 52

In attendance: R. F. Sharon, J. F. Hines, T. K. Lau, W. H. Engels, R. Tenney.

Exhibiting: Overhead "Panelbloc" infra-red industrial gas unit heaters; "Thermobloc" oil and gas fired industrial heaters.

THERMO-PRODUCTS, INC., Garfield Ave., North Judson, Ind.—Booth N-324

In attendance: J. S. Cunningham, H. M. Pugh, D. L. Culver, Raymond Nordstrom, Wm. Bozung, James Schaeffer, C. W. Shank.

Exhibiting: Oil fired furnaces, gas fired furnaces, hot water boiler, air conditioning.

THRUSH & CO., H. A., Peru, Ind.—Booth 1173

TITUS MFG. CORP., P. O. Box 810, Waterloo, Iowa—Booths 117, 121

In attendance: Donald L. Titus, Robert W. Titus, J. D. Davis, J. S. Smith, Harold E. Straub, E. F. Averill, Robert E. Wirth, Marlin A. Cook, Frank J. Coates.

Exhibiting: Complete line of air diffusion outlets for all applications. "New ideas and new applications for special custom work" will be available also at the exhibit.

TORIDHEET DIV., CLEVELAND STEEL PRODUCTS CORP., 16025 Brookpark Rd., Cleveland 11, Ohio—Booths N-308, N-310, N-312

In attendance: R. J. Lucas, D. W. Rouse, C. H. Strack, W. K. Hafer, B. F. Mondale, J. F. Doyle.

Exhibiting: Oil conversion burners, wall flame and gun; gas conversion burners; comfort cooling equipment; oil furnaces; gas furnaces; boiler burner units (oil).

TORRINGTON MFG. CO., THE, Torrington, Conn.—Booth 816

In attendance: D. B. Robinson, William Cashen, C. A. Hathaway, L. C. Lindstrom, F. C. Hohmeister, T. Porter West, M. B. Hunting, R. O. Kennedy, Jr., K. Merz.

Exhibiting: Blower units, large blower wheels, "Airotor" blower wheels, individually bladed tab lock wheels, fan blades. New "V. B." blower units, tab lock blower wheels, and offset fan blades will be featured.

TRANE CO., THE, Third and Cameron Sts., La Crosse, Wisc.—Booths 3, 7

In attendance: R. E. Lee, V. E. Bushnell, J. M. Whalen, R. G. Lubinsky, L. R. Fuller, M. L. Hoglund, W. R. Barnard, H. F. Griese, W. G. Wassmandorf, K. W. Shannon, P. L. Hughes, L. E. Daniel, A. L. Wasserman, J. F. Eckelart, D. D. Ammentorp, E. A. Cline, A. C. Menke, A. J. Hackl, R. H. Pearce, Jr., H. J. Case, V. R. Simpson, Jr., W. E. Graham, Jr.

Exhibiting: "CenTraVac" automatic hermetic centrifugal refrigeration unit (water chiller); "Cold Generator" reciprocating compressor refrigeration unit (package chiller); "Climate Changer" fan-coil air handling unit (large capacity); "Multi-Zone Climate Changer" (large capacity); reciprocating compressor for air conditioning and refrigeration; Class III fans for high pressure air conditioning system application; utility fans-package ventilating units; "Torivent" unit heater (heavy duty blower type); steam specialties—traps, valves, etc.; "Wall-Fin" pipe coil heating unit (finned radiation); baseboard residential convactor unit; unit ventilators; unit heaters (steam, hot water, gas fired); cooling and heating coils; brazed aluminum heat exchangers for oil cooling, electronic tube cooling, cockpit cooling, chemical process work, etc.; "Induction UniTrane" high pressure room air conditioning units; self-contained packaged year around air conditioning units. "Torivent" unit heater, "Multi-Zone Climate Changer," self-contained packaged year around air conditioning units, Class III high pressure fans, unit ventilator shelving, bucket trap, float and thermostatic trap, utility fans, and "Type C" all purpose room cabinet type convactor heating unit will be featured.

TRERICE CO, H. O., 1420 W. Lafayette Blvd., Detroit 16, Mich.—Booths 765, 767

TRIAD SALES CORP., 5121 N. Clark St., Chicago 40, Ill.—Booth 124

TRION, INC., 1000 Island Ave., McKees Rocks, Pa.—Booth 1210

In attendance: Donald W. Boehler, William F. Watson, James W. Hall, Jr., William A. Gill, John W. Tadioc, Carl Morlock, William R. Murdock, Richard E. Sweitzer, Hank C. Fry, Edward Hengstler, John Golden.

Exhibiting: "HEV" high efficiency, high velocity electronic air cleaner; traveling oil curtain mechanical filter; mechanical filter panels. New line of standard packaged electronic air cleaners in capacities from 1000 to 9600 cfm for use with any size furnace or air conditioning unit, including vertical air flow models, will be introduced.

TRIPLEX HEATING SPECIALTY CO., INC., THE, 248 N. Grant St., Peru, Ind.—Booth N-429

In attendance: W. S. Petty, C. E. Denny, R. S. Waite, L. H. Wise, L. R. Peters.

Exhibiting: Hot water heating circulators, headers for radiant heating, flow control valves, one-pipe fittings (iron and brass) and other miscellaneous hot water heating specialties, pressure control valves. Air trap specifically designed for horizontally tapped hot water heating boilers will be featured, as will a tank drain fitting.

TUBE MANIFOLD CORP., 415 Bryant St., North Tonawanda, N. Y.—Booth N-221

In attendance: Dean M. Rockwell, Richard F. Burke.

Exhibiting: Refrigeration receivers and component parts.

TUTHILL PUMP CO., 939 E. 95th St., Chicago 19, Ill.—Booth N-438

In attendance: P. W. Berg, A. I. Caney, M. J. McCaughey, J. G. Tuthill, J. D. Young.

Exhibiting: Special and standard pump units.

New belt-driven pump sets for heavy fuel oil transfer service will be featured.

TUTTLE & BAILEY DIV. OF ALLIED THERMAL CORP., 215 Warren St., New Britain, Conn.—Booth 654

In attendance: R. D. Tutt, F. W. Adams, D. D. O'Neill, Stanley Hart, G. W. Copeland, D. E. Murray, W. L. Batchelor, R. S. Rickabaugh, George Scribner, W. G. Kleinhomer, J. Whitehouse, J. H. Faller, J. F. Wolff, L. B. Wilson, M. R. Bureson, J. F. Wyatt.

Exhibiting: High pressure air distribution equipment, ceiling diffusers, air conditioning grilles and registers, baseboard. Pressure reducing valve will be featured.

TYPHOON AIR CONDITIONING CO., DIV. OF HUPP CORP., 505 Carroll St., Brooklyn 15, N. Y.—Booths 413, 415, 417

In attendance: Leon J. Ayanakian, C. A. Comstock, John Graham, Joy S. Hurd, Seymour H. Jarcho, Melvin H. Klingher, Henry Lesieur, A. G. Masiello, Larry D. Spence, Ed. Seery, Gordon Shewman, John F. Wilcox, George D. Yeazel, Robert E. Newlin, Jim DePatee, Duane Krohn, Clyde Lancaster, John Maycock, Douglas Via, Les Brosell, W. W. Dukes, Arthur H. Farr, S. Byron Stone, Norman Mendes, Murray M. Kabili, Maurice Firestone, Mark Mooney, Don V. Petrone.

Exhibiting: Self-contained packaged unit, air cooled condensing units, low side units, high side units, water chiller, attic units, furnaces.

UNIT ELECTRIC & MFG. CO., 1057 Summit Ave., Jersey City 7, N. J.—Booth 306

In attendance: Louis J. Newman, Henry Winston, Charles Rapiport, Sidney S. Blackman.

Exhibiting: "Super Long Life" ignition transformers.

UNITED ELECTRIC CO.—see MAGIC AIRE DIV.

UNITED SHEET METAL CO., INC., 540 S. Drexel Ave., Columbus 9, Ohio—Booth N-229

In attendance: James McGill, Jack Wolman, Maurice Lautenslager, Lige Collins, E. M. Schleppe, Richard Chesrown.

Exhibiting: Spiral lockseam pipe, sheet metal fittings, sound absorbers.

UNITED STATES AIR CONDITIONING CORP., 7900 Tabor Rd., Philadelphia 11, Pa.—Booths 1029, 1033

In attendance: D. E. Feinberg, L. P. Hanson, James H. Flowers, Frank Klein, J. H. Montgomery, Wm. Moisselle, Robt. McLain, Leonard Gordon.

Exhibiting: New air cooled condensers, improved "RK" central station units, new blower coil units, new store type packaged air conditioners, new combination units, new line of store air conditioning units, new designs of air cooled condensing units, and improved central station units will be featured.

UNITED STATES REGISTER CO., 344 E. Burnham St., Battle Creek, Mich.—Booth 1036

In attendance: Harry G. Hollman, A. A. Stagg, E. P. Kromdyk, C. J. Pearson.

Exhibiting: Air conditioning registers, vents and grilles; back pressure and exhaust fan dampers; air conditioning accessories. Perimeter base intake, base diffuser, and diffuser side-wall register will be featured.

UNIVERSAL DIFFUSER CORP., 38 Marbledale Rd., Tuckahoe, N. Y.—Booth 1236

In attendance: Charles Davies, J. S. Brown.

Exhibiting: Complete line of "Flexifo" diffusers — circular, square, rectangular, fixed circular, "Line-Air," etc. Long strip diffuser and fixed circular diffuser will be featured.

UTILITY APPLIANCE CORP., 4851 Alameda St., Los Angeles 58, Calif.—Booth 609

In attendance: Herbert Leo, Stan Skafte, Jerry Pinkus, Dick Peterson, Leo Hungerford, C. F. Cushing.

Exhibiting: Gas furnaces (upflow, counterflow, horizontal); gas fired unit heaters; combination heating and air conditioning unit; remote air cooled air conditioning equipment; evaporative air coolers.

UTILITY FAN CORP., A DIV. OF UTILITY APPLIANCE CORP., 911 E. 59th St., Los Angeles 1, Calif.—Booth 608

In attendance: Vance Smith, Leo Gorse, Marc McGuire, Herb Leo, Stan Skafte, Dick Peterson, Tom Kindred.

Exhibiting: Blowers and blower parts.

VAN-PACKER CO., DIV. OF THE FLINT-KOTE CO., 1049 State St., Bettendorf, Iowa—Booth N-437

In attendance: O. E. Collins, W. W. Ford, E. M. Kennedy, R. D. McFarland.

Exhibiting: All fuel chimney, model "G" gas vent, industrial stack.

VAPOR HEATING CORP., 80 E. Jackson Blvd., Chicago 4, Ill.—Booth N-409

In attendance: L. A. DiLucchio, T. J. Neunsinger, Wirt Farley, W. M. Smith, Frank Semrau, H. J. Wilcox, O. M. Chiesl, W. E. Wright, W. R. Bradley, G. R. Bailey.

Exhibiting: New 160 hp low pressure, drum type heating boiler; new 200,000 Btu "Wai-kiki" space heater.

VELOCITY-POWER TOOL CO., 201 N. Brad-dock Ave., Pittsburgh 8, Pa.—Booths 1229, 1231

In attendance: William G. Kulesz, Raymond E. Ginn, Jr., Charles B. Conway, Earle A. Widemann.

Exhibiting: "Lawco" portable pipe threader; "Torch-O-Matic" soldering, brazing, melting torches; stud hammer.

VENTFABRICS, INC., 640 N. Kedzie Ave., Chicago 12, Ill.—Booth 312

In attendance: James Bateman, Jr., DuPont Snowden, Jeanne Nauman

Exhibiting: Fabrics for flexible connections and damper hardware. Insulated access doors will be featured.

VIBRATION ELIMINATOR CO., THE, 10-28 47th Ave., Long Island City 1, N. Y.—Booth 532

In attendance: Samuel Kahn, M. E. Miller, Louis E. Imbert.

Exhibiting: Vibration eliminators of various types, including heavy duty; rails with built-in isolation units; overhead units, pipe hangers; etc.

VIBRATION MOUNTINGS, INC., 98-25 50th Ave., Corona 68, N. Y.—Booth 1156

In attendance: B. A. Ross, N. J. Mason, H. Harris, F. A. Balzer, J. Marshall, B. Fallon.

Exhibiting: Vibration control mountings and materials utilizing steel springs, rubber-in-shear, cork, and combinations of these materials. A new line of neoprene-in-shear vibration mountings in three sizes with a load range of 10 to 1250 lb per mounting, and a new vibration mounting and method of application for the isolation of air conditioning and refrigeration equipment foundations utilizing the reinforcing rods of the foundation and making the vibration mounting an integral part of the concrete block, will be featured.

VIKING AIR PRODUCTS DIV., NATIONAL U. S. RADIATOR CORP., 5601 Walworth Ave., Cleveland 2, Ohio—Booth 549

VILTER MFG. CO., THE, 2217 S. First St., Milwaukee 7, Wisc.—Booth N-321

In attendance: L. L. Diener, H. J. Eggert, J. F. Heil, R. A. Klokner, J. B. Kupfer, C. D. McCrindle, H. H. McKinnies, F. T. Pallanch, D. E. Perham, M. F. Tokach, A. O. Vogel.

Exhibiting: Self-contained liquid chiller ("Uni-Chiller") consisting of a six cylinder "F-12" VMC compressor, a 20 in. x 10 ft insulated chiller, a 12in. x 9 ft condenser and a 75 hp motor, all mounted on a steel base to form a compact, complete assembly.

VULCAN RADIATOR CO., 775 Capitol Ave., Hartford 6, Conn.—Booth 927

In attendance: Joseph D. Pierce, Walter T. Bell, Martin Trachtenburg, Milton L. Lundgren, John H. Ehn.

Exhibiting: Commercial and residential baseboard, electric baseboard, heating-cooling baseboard, "Linoventilator", and other products.

WAGNER ELECTRIC CORP., 6400 Plymouth Ave., St. Louis 14, Mo.—Booth 1129

In attendance: J. H. Devor, H. N. Felton, A. C. Allen, L. C. Dobrunz, M. H. Nelson, P. C. Ford, C. E. Widell, A. E. Frohardt, R. B. Vassier, E. G. Sherrill, J. B. Holston, J. H. Wolf, L. W. Carnahan, G. J. Halas, M. D. Paul, G. H. Rentschler, S. R. Snyder, R. L. Tucker, P. D. Young, A. A. Sederholm, F. B. Minx, M. B. Atkinson, R. E. Bryant, A. H. Beasley, C. E. Metcalf, L. A. Murphy, W. H. Gilster, P. M. Postelthwaite, R. H. Lane, R. W. Larson, R. K. McLuene, E. O. Krueger, P. M. Burgess, B. M. Saunders, P. F. Ryan, F. H. Vocks.

Exhibiting: Electric motors for heating and air-conditioning equipment. New design 48 frame fractional horsepower motors will be featured.

WALKER MFG. & SALES CORP., 1701-17 Penn St., St. Joseph 1, Mo.—Booth 920

In attendance: Andrew H. Ziph, LeRoy Bartholomew, Raymond Denning, Stanley H. Burt, B. L. Rushton, H. J. Nicholson, R. E. Michel, Harry G. Johnson.

Exhibiting: Commercial and industrial draft controls; domestic automatic draft regulators; double-swing draft regulators for gas; draft inducers for combustion equipment; and chimney caps for low draft chimneys. New safety controls for double-swing regulators for gas and combination draft inducer regulators will be featured.

WALLACE CO., WILLIAM — see METAL-BESTOS DIV.

WALTON LABORATORIES, INC., 1186 Grove St., Irvington 11, N. J.—Booth 434

In attendance: Wm. Feldermann, Jack Feldermann, Robert J. Lewis, Frank Hartwell, J. B. Wenck.

Exhibiting: Industrial, residential, and duct type humidifiers; humidistats; humidity indicators. New duct type humidifiers, "which make it possible to adapt mechanical atomizer operation to duct systems," will be featured.

WARREN ENGINEERING CO., Route 24, Broadway, N. J.—Booth N-414

In attendance: George E. Breece, Jr., Frank H. Stephan, Russell McElroy.

Exhibiting: Temperature control valves, pressure regulators, electric motor-operated valves, diaphragm control valves.

WATERLOO REGISTER CO., INC., P. O. Box 72, Waterloo, Iowa—Booth 337

In attendance: E. T. Kelly, W. B. Mooney, V. H. Kyhl, R. E. Nemmers, J. M. Simatovich, L. E. Zumbel, H. L. Jordan, C. H. Houghton, E. E. Clark

Exhibiting: Wall registers and grilles for heating, ventilating and air conditioning; volume control dampers for heating, ventilating and air conditioning; door and partition grilles (no-sight) for ventilating.

WATERMAN-WATERBURY CO., THE, 1121 N. E. Jackson St., Minneapolis 13, Minn.—Booth 448

In attendance: Harry G. Cross, David E. Sedgwick, Stuart A. Smith, Charles A. Reichelderfer, John D. Holmgren, F. W. Legler, James R. Hansen, Keith J. Anderson, Roy L. Lonson, Norman MacIntyre, O. M. Griefnow, E. M. Delaney, Ira W. Metcalf, E. R. Boedecker, H. C. Lohman, D. W. Mathison, H. G. Boyer.

Exhibiting: Year round "Comfortrol" system; winter air conditioners (gas, oil and coal fired); water cooled and air cooled summer air conditioners; gas conversion burners. Year round "Comfortrol" will be featured, and 50th year anniversary of manufacturer will be marked.

WATTS REGULATOR CO., 10 Embankment St., Lawrence, Mass.—Booth 135

In attendance: G. B. Horne, B. G. Robertson, A. J. Harvey, Jr., V. R. Bitzer, R. W. Rassbach, M. Mercury, T. Mercury, S. Fitzgerald.

Exhibiting: ASME rated water pressure relief valves; temperature and pressure relief valves; regulators for steam, water and air; boiler water level controls. New design high capacity ASME rated water pressure relief valves with expanded outlets, and steam temperature regulators, will be featured.

WAYNE HOME EQUIPMENT CO., INC., 801 Glasgow Ave., Fort Wayne 4, Ind.—Booth 1169

In attendance: Jack Nace, G. J. Klopfenstein, J. J. Thurston, C. V. Copeland, N. G. Berghoff, B. G. Duer.

Exhibiting: Oil burners.

WEATHERHEAD CO., THE, FORT WAYNE DIV., 128 W. Washington St., Fort Wayne, Ind.—Booth N-239

In attendance: A. S. Wade, George R. Anderson, Warren D. Mack, J. R. Holiger, R. B. Phillips, Charles Sutton, Charles Craig.

Exhibiting: Flared and flareless industrial brass and steel tube fittings, hydraulic and air conditioning components.

WEBSTER ELECTRIC CO., 1900 Clark St., Racine, Wisc.—Booth 572

In attendance: D. J. Munroe, H. C. Stacey, W. E. Dent, R. A. Lewane, F. G. Crewe, B. T. Wiechers, Louis Ehrich, Wm. Wenzel, Herb Weinbrenner, George Brinkerhoff, John Kralicek, Paul Deuble, Tom Godburn, Jr., Louis E. Woolf, Paul Maurice, Otto Neilson, John McAlvay, Lou Schwob, Don Hall.

Exhibiting: "ServiceSaver" fuel pump, ignition transformers, "Delaytrol" solenoid valves, the fuel pump being featured.

WEBSTER & CO., WARREN, 17th & Federal Sts., Camden 5, N. J.—Booths 706, 708, 710

In attendance: Warren Webster, A. R. Webster, D. F. Bennett, N. W. MacNichol, J. C. Woodson, I. G. Brennan, J. J. Poyatt, B. F. Lerch, L. H. Plum, D. E. Morgan, J. C. McKeown, C. H. Grissom, III, R. D. Hubbard.

Exhibiting: Complete line of heating and air conditioning products, and hot water and steam specialties. New "Tru-Perimeter" baseboard, new "Cool Air" systems, and new "Newport" year-round air conditioner will be featured.

WEIL-MCLAIN CO., Michigan City, Ind.—Booths 947, 951

In attendance: Martin Weil, E. R. Westphal, M. E. Mitchell, R. M. Stockwell, P. R. Stockwell, C. A. Wolff, J. E. Sorensen.

Exhibiting: Complete line of gas-fired boilers (including cutaways), gas and oil-fired package units, heavy duty boiler for horizontal rotary oil burner (cutaway), new "No. 72" oil heating unit, "Easy-Fit" header, new "Coolmate" fan coil unit and packaged water chiller, "Snug" baseboard panels, new "Type P-AG" gas-fired package unit.

WEIL PUMP CO., 1530 N. Fremont St., Chicago 22, Ill.—Booths 1142, 1144, 1146, 1148

In attendance: R. T. Sheridan, W. L. Luther, J. D. Spooner, J. P. Palumbo, F. Feder, L. V. Woolum.

Exhibiting: Submersible sewage ejectors, submersible sump pump, suspended non-clog sewage ejectors, condensate pump, circulating pump. Large schematic drawing showing complete heating system using illustrations of all types of condensate and circulating pumps in exhibitor's line and their functions and relation to each other will be featured, as will operating models of submersible and suspended type sewage ejectors and submersible sump pumps.

WESTINGHOUSE ELECTRIC CORP., 401 Liberty Ave., Pittsburgh 30, Pa.—Booths 902, 1003, 1007, 1103

In attendance: R. J. Moore, W. B. Cott, W. T. Rogers, C. R. Rhine, N. R. Miller.

Exhibiting: Air conditioning, heating and ventilating equipment; "Corox" heaters; electric motors; electric motor control; speed reducers and speed increasers.

WHEEL TRUEING TOOL CO., 3200 W. Davison Ave., Detroit 38, Mich.—Booth N-346

In attendance: Karl J. Klapka, R. E. Chatterton, Adam Knuth, D. Harris, A. Bauer, D. Lubanko, R. S. Smith.

Exhibiting: "Truco" diamond drilling machine, diamond drilling equipment and accessories, diamond drill motors, diamond drill bits, swivels, water pick-ups.

WHIRLPOOL-SEEGER CORP., St. Joseph, Mich.—Booths N-234, N-236, N-238

WHITE-RODGERS CO., 1209 Cass Ave., St. Louis 7, Mo.—Booths 427, 429, 431

In attendance: J. Powell, A. E. Petersen, E. E. Harwood, R. N. Weber, W. Hawkins, V. Hertz, A. Hudson, W. Dague, W. Galloway, J. Morgan, J. Maney, R. Jehling, E. Raithel, R. Kind, E. Wechsler, D. Westcott, H. G. Campbell, E. C. Robinson, E. Ball, R. A. Sherer.

Exhibiting: Complete line of automatic controls for heating, refrigeration and air conditioning. "Fashion" room thermostat, with new shape and color, and with hinged cover which enables it to be painted and "disappear" into the wall; new oil burner controls with new type heat sensing element which enables the primary control to be mounted on the equipment before shipment from the factory; new hot water controls with new design well immersion to give fast response to temperature changes; and combination oil burner-hot water controls designed to cut down materially on wiring, time and materials will be featured.

WIEGAND CO., EDWIN L., 7500 Thomas Blvd., Pittsburgh 8, Pa.—Booth N-439

In attendance: C. F. Kreiser, W. L. Thomson, William Potter, T. A. McLean, George Sowash, W. G. W. Glos.

Exhibiting: "Chromalox" electric unit ventilators, electric fan-type recessed wall heaters, electric cabinet convectors, electric baseboard heaters, electric floor drop-in heaters, electric in-duct heaters, electric duct-type unit heaters, electric all metal radiant wall panels.

WILLIAMS DIV. — see EUREKA WILLIAMS CORP.

WILSON MFG. CO., 787 S. Bardsdale St., Memphis 4, Tenn.—Booths N-426, N-428

In attendance: Frank R. Wilson, E. V. Dunbar, George Dunbar, Walter Evans, Percy G. Hansen, W. J. McKeough, Arthur Quantrell, Rudy Wolfe.

Exhibiting: Complete line of new tubing tools consisting of flaring, cutting, bending and swedging for all types of tubing. Each tool is identified by an individual and separate

colored printed box, with a new numbering system to identify a particular tool.

WINCHESTER-WESTERN DIV., OLIN MATHIESON CHEMICAL CORP.—see RAMSET FASTENING SYSTEM

WING MFG. CO., I. J., Linden, N. J.—Booth 1211

In attendance: H. S. Wheller, C. H. Smith, T. R. Peyrek, G. Nash, H. J. Clemens, C. W. Diemecke, D. J. Guerin, E. D. Rosenberg, H. D. Barr, R. H. Langer, Geo. Felty, T. F. Schenke, H. L. Kister, A. W. Carter, K. E. Herbert, Howard C. Roller, R. J. McCrory, G. M. Comstock.

Exhibiting: Revolving unit heater, fresh air supply heater, gas utility heater, duct fan, draft inducers, motorized and turbine driven forced draft fans, auxiliary steam turbine.

WIREMOLD CO., THE, Hartford 10, Conn.—Booth 213

In attendance: Robert S. Dutton, William E. Rejeski, Paul O. Roedel, Jr.

Exhibiting: Flexible air ducts.

WOLVERINE TUBE DIV. OF CALUMET & HECLA, INC., Guardian Towers, Guardian Bldg., Detroit 26, Mich.—Booth N-327

In attendance: J. M. Dumser, R. C. Crowe, R. T. Davies, E. J. Campbell, H. A. Harty, C. H. Kuthe, and others.

Exhibiting: "Trufin" integral finned tubing; "Capilator" controlled ID capillary tube used for restriction purposes, "so tiny it can be sealed with a pin"; "Roll-O-Tube" roll of copper tube on a reel; aluminum evaporator assembly containing copper-to-aluminum connector, the accumulator, the coil.

WOOD CO., JOHN, HEATER AND TANK DIV., 100 Washington St., Conshohocken, Pa.—Booth N-206

WORTHINGTON CORP., Harrison, N.J.—Booths 954, 958, 962, 1055, 1059, 1063

In attendance: A. F. Ward, F. J. Watt, F. J. Blacker, C. Benge, P. McLeod, P. Dalton, R. O. Gundlach, D. Flynn, F. Dolar, J. Klaiber.

Exhibiting: Hermetic centrifugal refrigeration compressor; two-stage centrifugal; induction circulator; "Flexicool" packaged air conditioners; packaged chillers; air handling units; furnaces. The "Climate Van," a mobile display of packaged air conditioning and heating equipment, will be featured, as will the hermetic centrifugal.

XXTH CENTURY HEATING & VENTILATING CO., THE, 96 Ira Ave., Akron 1, Ohio—Booth 628

In attendance: J. Garver Kerch, R. K. Long, John G. Kerch, Jr., Walter H. Stashkiw.

Exhibiting: Cast iron gas, oil and coal warm air furnaces; residential air cooled air conditioning. New air conditioning line with remote air cooled condensing units in connection with evaporator coil installed in warm air plenum will be featured, as will "unconditional life-time guarantee on the entire heating element on all of the manufacturer's gas fired furnaces for the homeowner."

YEATS APPLIANCE DOLLY SALES CO., 2124 N. 12th St., Milwaukee 5, Wisc.—Booth N-425

In attendance: James Barksdale, Albert F. Marlin, Virginia Marlin.

Exhibiting: Appliance dollies and padded covers to protect equipment during delivery. "Heavy Duty" half-ton capacity dolly, designed for easy handling of such equipment as furnaces and 80 gal water heaters, with aluminum alloy frame, caterpillar step glides, patented strap ratchet and with two straps and ratchets and four wheels, enabl-

ing operator to roll heavy equipment on the horizontal rather than balance it vertically, will be featured.

YORK CORP., INDUSTRIAL DIV., York, Pa.—Booth 32

In attendance: Henry M. Haase, Ray K. Serfass, J. J. Floreth, J. Donald Smith, W. L. Pharo, L. P. Quinlivan, C. N. Eehalt, R. G. Werden, M. S. Lehair, Fred Wood, Chris Schurman, H. W. Broadwell, E. F. Edwards, M. M. Crout.

Exhibiting: "Turbomatic" compressor, complete new line of induction units, complete new

line of fan window air conditioners.

YORK-SHIPLEY, INC., York, Pa.—Booths 111, 113, 115

YOUNG RADIATOR CO., 709 S. Marquette St., Racine, Wisc.—Booth 206

In attendance: F. M. Young, J. J. Hilt, W. G. Schlichting, P. J. Menden, G. R. Gibson, H. F. Brinen, J. Sidwell, P. Evans.

Exhibiting: Air conditioning units, "Perima-heat" baseboard convectors, heating and cooling coils, unit heaters, convectors. Type "H" unit heaters and "Roomaire" conditioners will be featured.

YOUNG REGULATOR CO., 5209 Euclid Ave., Cleveland 3, Ohio—Booth 724

In attendance: E. O. Young, W. J. Zimmer, R. J. Komar, Alec Byfield.

Exhibiting: Damper regulators and accessories, remote control regulators, air-split damper regulators, registers, air conditioning grilles, no-vision grilles, ceiling diffuser.

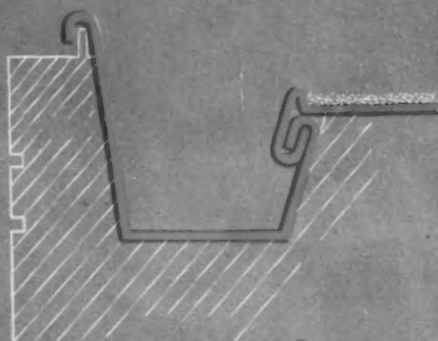
ZATKO METAL PRODUCTS CO., 20850 St. Clair Ave., Euclid 17, Ohio—Booth 940

In attendance: Lester T. Zatko, J. L. Menart, F. P. Gibbons, B. McLouth, D. Darnell.

Exhibiting: Pulleys and V-belts.

HOW WOULD YOU DO IT?

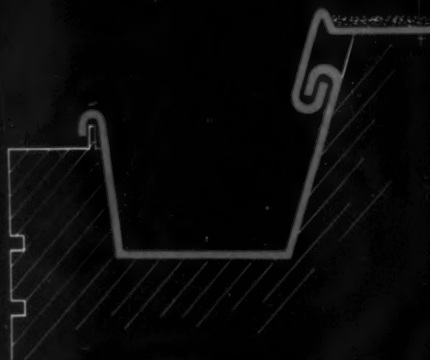
... this way?



**ROOF GUTTER
DETAIL**

Fig 1

... or this way?



**ROOF GUTTER
DETAIL**

Fig 2

The Fig. 1 detail indicates that the back or roof side of the gutter is $2\frac{1}{2}$ inches lower than the front edge of the gutter. The gutter lining is connected to the gravel stop with an unsoldered loose lock seam.

The Fig. 2 detail indicates that the back or roof side of the gutter is $2\frac{1}{2}$ inches above the front edge of the gutter. The gutter lining is connected to the gravel stop with an unsoldered loose lock seam.

The gutter shown in Fig. 1 was probably designed this way because it was feared that the rear edge of the gutter and roof would be seen from the street. In the attempt to achieve

this, although the roof would probably show from a short distance anyhow, good construction detail was sacrificed.

In the event that the gutter filled with snow and ice or the drains became plugged and the gutter filled with water, the water would pour through the rear lock and into the structure.

Because of the slight change in construction as shown in Fig. 2 this trouble is avoided. Although the gutter lining and gravel stop are connected by the same type of lock as shown in Fig. 1, should the gutter fill with water, the water will run over the front edge and not into the structure.

We do not wish to presume to tell you how to install gutters, leaders, roofs, flashing, coping covers, etc., because there are many methods which you no doubt have found to be satisfactory. The purpose of this advertisement is to point out the methods of installation that have been proved by many years of use, and backed by more than a century and a half of experience in working with copper, to be the most satisfactory techniques. You will find these methods in Revere's 110 page brochure, "COPPER AND COMMON SENSE." Send for a copy today. And remember: Revere has a staff of specialists known as Technical Advisors, whose experience qualifies them to render valuable service and advice regarding the use of metals in the building field. Feel free to consult with them at all times regarding the use of Revere Copper; you incur no obligation. Revere Technical Advisors may be contacted through the Revere Office nearest you.



REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Newport, Ark.; Rome, N. Y. Sales Offices in Principal Cities, Distributors Everywhere.

Tecumseh

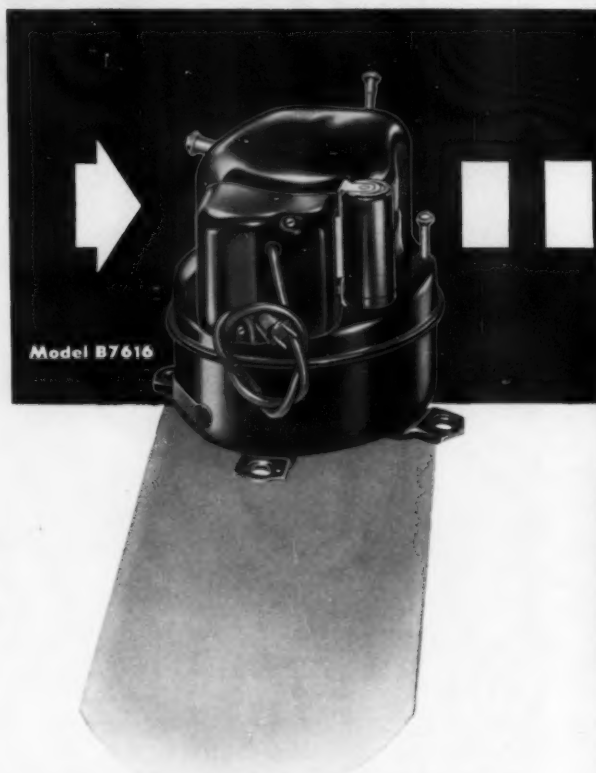
From The Compressor That
Was PRE-DESIGNED For The
Air Conditioning Boom . . .

Long aware of the vast potential of air conditioning, Tecumseh alone stood ready to make deliveries to the industry in 1947. By 1950 the popular $\frac{1}{2}$ and $\frac{3}{4}$ HP twin cylinder compressors had already been field tested and were enthusiastically received for room cooler applications. Accepted as the standard of the industry, the Tecumseh $\frac{3}{4}$ HP twin cylinder shortly was contained in 72% of all air conditioners sold.



Models
B74T16,
B32P16

engineering VISION



Model B7616

TWIN CYLINDER DEVELOPMENT

As the single cylinder models replaced the smaller horsepower range of twins, the 1, 1 $\frac{1}{2}$, and 2 HP twin cylinder models were developed to supply the industry need for larger capacity. The addition of PSC motors has allowed the elimination of costly and troublesome electrical components with a corresponding saving in the cost of the complete unit. A 2 HP compressor today costs less than the $\frac{3}{4}$ HP compressor of 1950!



The Leader Serving Leaders
TECUMSEH PRODUCTS

EXPORT DEPT. — P.O. Box 2280, 24530 Michigan Ave.,

Exhibiting in BOOTH NO. 1114,

means **PROGRESS** through

**Product Development
Production Efficiency
Price Reductions**

**... Came Compressors Extending
The Market – And At EVEN LOWER
UNIT COSTS !**

With an industry fully satisfied with the performance of the Tecumseh twin cylinder compressors, Tecumseh engineers began the development of an efficient single cylinder model. This compressor was introduced in 1953 and represented a 20% saving over the 1950 cost of a comparable twin cylinder model. The Tecumseh $\frac{1}{2}$ and $\frac{3}{4}$ HP single cylinder compressors helped expand the industry by bringing the price of the window air conditioner within the reach of more people. They completely replaced the twins within their horsepower range and incorporated design features which anticipated future power regulations. The present price of the Tecumseh single cylinder model shows an additional 10% price reduction since its introduction in 1953, an overall reduction of 28% in seven years!

Still further advancements have been made. From the Model S7R16 design came the single cylinder models at the left. The S6N14 is a $\frac{3}{4}$ HP, $7\frac{1}{2}$ amp. hermetic compressor which permits the manufacturer to offer a room air conditioner that may be plugged into existing house circuits . . . eliminating the need for rewiring. This unit represents a further cost saving over the S7R16. The S1T16 is a 1 HP, 12 amp. unit which may be operated off a single outlet 115 volt line. This is Tecumseh PROGRESS working for you to provide better compressors for wider applications at the best possible price.



PRODUCTION GEARED TO YOUR NEEDS

Together with constant Engineering Vision aimed at continual product improvement, Tecumseh mass production efficiencies have kept pace. Savings and product improvements passed along to Tecumseh customers have given them advantages available from no other supplier.

Tecumseh production capabilities were dramatically proven during the growth of the room air conditioning industry. Anticipating a volume well beyond the general industry forecasts and realizing the highly seasonal nature of the demand, Tecumseh invested several million dollars to build a complete standby production facility for room air conditioner compressors. Completed in 1952, this line allowed Tecumseh to supply customers with their unprecedented and

unexpected demand for almost one million compressors in 1953! This actual production exceeded the most optimistic estimates by almost a half million units! Tecumseh VISION was directly responsible for the early realization of the industry's first million unit year.

However, mass production is not the answer in itself. Meeting delivery schedules for a wide variety of units, each engineered to individual needs, when and where the customer requires, is a recognized necessity. At Tecumseh this is possible because of strict production control and an experienced, capable labor force, long accustomed to meeting these exacting requirements. Continuing advancements in the best interests of the industry will always be the watchword at Tecumseh.

In The Air Conditioning And Refrigeration Industries

COMPANY

West Dearborn, Michigan

MARION, OHIO

TECUMSEH, MICHIGAN

International Heating & Air Conditioning Exposition Chicago



Idea Exchange for Dealers, Contractors

Job Parts Form Saves Installation Time

A FORM TO simplify specification of duct lengths, duct fittings, smoke pipe and fittings, registers, controls, furnace and other components of a forced warm air or gravity heating system has been developed and put into use by Robert L. Weaver, S. R. Weaver Furnace Co., Columbus, O. The sheet of paper used for the form is longer than most ($8\frac{1}{2} \times 14$ in.) but it was felt it would be more desirable to have all of the headings on one side of a page rather than risk overlooking some item on the back of a two page form.

At the top of the form is a space for the name of the customer, his address and the date. The remainder of the form is divided into three equal columns $2\frac{1}{2}$ in. wide. Each column contains specific headings with subheadings under each. Under the first heading is space for model number and rated output capacity of the furnace. The humidifier heading follows. Other headings are broken down to provide more detailed information; for example, the "Control" heading contains a specific list of controls that must accompany each furnace to the job site. If the controls are factory installed, this information is noted. If the controls are packed in separate boxes, those required will be listed to prevent their being left at the shop when the order is delivered.

In most cases the form provides ample space for stating the quantity of each item required. This information is recorded by the salesman who engineers the job. When the shop foreman fills the order, he draws a

NAME		DATE	
ADDRESS		PHONE	
FURNACE		W. A. DUCT (round)	
Forced air: Model	ft	size	45° 90°
Cap.		4"	
Gravity: Model		5"	
Cap.		6"	
		7"	
		8"	
		9"	
HUMIDIFIER		10"	
Model		12"	
FILTERS		W. A. DUCT (rectangular)	
Size	ft	size	45° 90°
No.		3×8	
		4×8	
		5×8	
		6×8	
		7×8	
		8×8	
		4×10	
BAROMETRIC DAMPER			
Size			
		COLD AIR PIPE & FITTINGS	
	ft	size	shape
			5' joints
			5' joints
			45° elbows
			45° elbows
			90° elbows
			90° elbows
			draw bands
			draw bands
			collars
			collars
			shoe or boot
			shoe or boot
			transformer
			transformer
		REGISTERS	
	no.	size	type

COMPONENTS OF EACH installation are specified and described on large form (partially illustrated), then double-checked to assure delivery of complete set of parts to job site

line through the engineer's markings. The engineer uses a red pencil to show at a glance that specified parts are being assembled for delivery.

The form is easy to use. For example, if 30 ft of 6 in. round duct, six 45 deg elbows and three 90 deg elbows are needed, the engineer jots 30 opposite the "6 in." subhead under the main heading, "W.A. Duct (Round)" and on the same line will mark the figure 6 in the "45 deg" column and 3 in the "90 deg" column. Practically all sizes of equipment are shown on the form; however, one or two blank spaces are usually provided under each heading for special or unusual requirements.

Some of the headings are shown

in the illustration of part of the sheet; others listed on the form are: Dampers, with sizes from 4 in. to 12 in. listed; Cold Air Returns, with all standard sizes listed; Joist Covering, showing the number of feet required; Joist Caps, listed for $7\frac{1}{2} \times 16$ in. and $9\frac{1}{2} \times 16$ in.; Boots, all standard sizes listed; Takeoffs, in all standard sizes required. Also listed under Miscellaneous Materials are sand, cement, insulation, joint tape, hangers and drive cleats.

The use of this form has proved very helpful in reducing the number of trips back to and from a job because everything needed is specified and checked before the order is delivered.

Radically new **Vornado**[®] selected dealer program makes central air conditioning a good business proposition...

VORNADO SELECTED DEALER PROGRAM ASSURES YOU:

- ★ Adequate Sales Area
- ★ Traffic Building Promotions
- ★ Proven Prospect Program
- ★ Continuous Sales Application and Installation Training
- ★ Powerful Merchandising and Advertising Assistance
- ★ Full Profits

Vornado can be attached to the heating system or installed as a complete and separate system. Vornado goes anyplace, wherever it is most practical: attic, crawl space, basement, furred down hallway.

COMPLETELY PACKAGED... Vornado puts air conditioning in self-contained, air-cooled package... eliminates extra plumbing... water connections... outside accessories. Everything in just one compact, sturdy package!

OUTSTANDING PERFORMANCE... Two hermetically-sealed, heavy-duty compressor units deliver unequalled capacity. One operates continuously — constantly removes excess humidity. Second compressor cycles on and off as needed for economy's sake.

FULLY GUARANTEED... Factory warranty assures satisfactory service. Over 7 million satisfied Vornado users.

**Only System of Its Kind
Proved in Thousands of Homes**

These dealers billed over

\$100,000 each with Vornado

Central Air Conditioning in 1956

"Vornado certainly proved to us they have the plans and the product to sell and merchandise in volume. Vornado's complete training program enabled us to start out in the right way. This valuable help, along with the many ways the product can be adapted to all types of residential and semi-commercial installations... has made this business very profitable for us." S. J. Speer and Son, Caldwell, New Jersey.



"Having introduced Vornado in Washington last year, and with over 300 jobs installed, we can say that since our entry into the air conditioning field in 1932 we have never experienced any item that has given our customers so much satisfaction at so little cost, and has been such a pleasure to sell." A. H. Johnson, President, A. S. Johnson Co., Inc., Washington, D. C.

Vornado dealers all over the country are enjoying comparable success.

SEND
THIS
COUPON
TODAY

The O. A. Sutton Corporation, Inc.
1812 West Second Street, Wichita, Kansas.

I want complete information on your new versatile low-cost Vornado Central Air Conditioners. It is understood there is no obligation.

Name _____
Firm _____
Position _____
Address _____
City _____ State _____

Products of

THE O. A. SUTTON CORPORATION, INC., Wichita, Kansas

World's leading full line manufacturer of comfort cooling appliances

Unmatched Economy + Whisper-Quiet Operation
= Easy, Profitable Sales



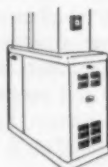
with
TORIDHEET



TORIDHEET

Rotary Wall Flame Oil Burners

Power These
Fuel-Thrifty
Units



Model ORA
Winter Air-Conditioner



Model ORD
Counterflow



Model ORA
Hi-Boy



Model ORU
Boiler



Model ORM
Water Heater

You make useful friends out of customers when you sell time-tested TORIDHEET Rotary Wall-Flame equipment. The operation is so reliable and quiet, the fuel economy so great, that customers tell friends and neighbors—actually become part-time salesmen for you.

Proved fuel savings up to 40% and trouble-free operation (only 1 moving part) make TORIDHEET a profitable line for you

to sell—a profitable line for your customers to buy. If you're not selling TORIDHEET you're missing a bet!

COMPLETE UNITS AND CONVERSION BURNERS—OIL OR GAS

Wall-Flame Oil Burners • Gun Burners • Wall Flame Boilers • Furnaces and Water Heaters
Gun Fired Boilers and Furnaces • Gas Conversion Burners and Gas Fired Furnaces
Low-Boys • Hi-Boys • Counterflows • Comfort Cooling Equipment

**SOME DESIRABLE DEALER FRANCHISES AVAILABLE—
YOUR INQUIRY IS INVITED**

CLEVELAND

Toridheet
AUTOMATIC HEATING

Toridheet Division
CLEVELAND STEEL PRODUCTS
CORPORATION

16035 Brookpark Road • Cleveland 11, Ohio

Affiliated Canadian Manufacturer: Aero Tool Works Limited, Toronto, Ontario.



For SHEETS and STRIP call U. S. STEEL SUPPLY !

WE'VE GOT THE STOCK . . .

WE GIVE THE SERVICE . . .

One fast telephone call can get you all of the sheets and strip you need! And that goes for the smallest customer as well as the largest.

U. S. STEEL SUPPLY has 18 well-stocked warehouses from coast to coast—each of them carrying large stocks of USS quality sheet and strip in the

types, grades, gages, and sizes you use. We can give you what you want . . . and deliver it where you want it . . . when you need it.

And, when you buy from U. S. STEEL SUPPLY, your shipment will arrive in good, clean condition, accurately cut to your specifications, and ready for fabrication.

Yes, just *one call* will get you the sheets and strip you need. See for yourself *why* U. S. STEEL SUPPLY is the place to buy.

U. S. STEEL SUPPLY

DIVISION

General Offices: 208 So. La Salle St., Chicago 4, Ill.



Warehouses and Sales Offices Coast to Coast

U N I T E D S T A T E S S T E E L

Salesman Has Right to Commissions Earned

Unless an employment contract states otherwise, a salesman is entitled to commissions on sales made even though delivery and payment occur after he has left the company

FREQUENTLY a controversy occurs when a salesman claims commissions on sales made by him which are filled or paid for after his employment has ended. Under ordinary circumstances when the sale is made the commission is earned. The date of shipment or payment of the account may govern the time for the payment of the commission, but nevertheless the salesman has earned it.

In a lawsuit involving such a contention decided only a few months ago in the courts of a Pacific Coast state, the employer insisted that when the salesman's employment ended before the shipment of the goods, no commissions were due him.

"It is manifest that, when the salesman procured the order to be forwarded to the factory and which was forwarded, he had done all he could do or was required to do in connection with the sale," said the court in its decision of that case.

Court Decides for Salesman

"A salesman selling goods on commission is entitled to a commission on goods sold by him during the continuance of the employment although the goods were not delivered or paid for, or even where the orders were not received by the employer until after the termination of the employment.

"Ordinarily an employee does not forfeit his right to commissions already earned under his contract by the termination of his employment, as by his discharge, unless the contract of employment provides other-

wise or provides for the performance of services as an entirety or unless there is a recognized custom in the business that such right will terminate with the employment."

Commissions, however, are under ordinary circumstances payable, not on orders but on sales, that is, upon the acceptance by the employer of the orders secured by the salesman.

In another case, the contract of a sales manager stipulated that he should receive commissions on all sales of air conditioning equipment in his territory. This was in addition to payment of salary and traveling expenses. Later when a direct sale was made by his employer, he contended he was entitled to a commission under this contract.

Employer Refused Payment

In support of its refusal to make such payment the employer asserted that the mark up on the sale had not been sufficient to allow the salesman a commission. In upholding a judgment in favor of the salesman the court said, "The employer had, of course, the right to make any compromise it saw fit with the customer. But in so doing, it could not effect the salesman's rights under his contract."

Such an agreement recently before the New York courts provided for commissions on the sale and servicing of equipment in a specific territory. Over a long period of time the salesman had been paid and had accepted his commissions on sales only after delivery had been made and not on unfilled orders. When

the salesman left the company, the court refused to allow commissions on unfilled orders after his employment had ended.

"While the commissions of an ordinary salesman are usually deemed to have been earned on the performance of his services in the procurement of orders accepted by his employer," said the court in this instance, "the parties may otherwise agree or provide in the contract of hiring.

Employee Was Manager

"In this case however the employee was employed not as an ordinary salesman but as a local sales manager in charge of a territory and was responsible for servicing as well as selling of the equipment handled by the dealer. (This was a case where a dealer had several branches in outlying areas of a large metropolitan area.) It is obvious that the employee's discharge put an end to all opportunity for the servicing of the equipment sold by the dealer.

"The salesman was paid and accepted commissions under his contract on many orders obtained by others prior to the commencement of his employment but which were filled after he entered this employment. He can hardly contend for a different consideration in view of his acquiescence in a practical construction clearly indicating that commissions were payable when orders were filled and the goods shipped to customers in his territory."

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states]

Are You Always

**LOW
BIDDER
?**

surely not

... when you justify your actual
overhead and your real net profit!

So ... in order to successfully
close your sale you must justify
the difference in price
to your prospect.



VICTOR

Dealers Are Doing This...

THE
FURNACE
WITH THE
HEAT RADIATING
FINS



Yes ... we can prove to you that VICTOR dealers are
doing just this! They close more sales ... at bigger profits.
BECAUSE ... they are handling a line famous for quality,
with patented fuel-saving FINS which give the owner more
real heating comfort at a 20% to 30% saving in fuel. Other
features of genuine merit, plus a 15-year warranty, clinch
sales. Get out of the competitive class with VICTOR!
See Us At The ASH&AE Booth No. 1049

**HALL-NEAL
FURNACE CO.**

Quality Furnaces Since 1890
1322-42 N. CAPITOL AVE.
INDIANAPOLIS 7, INDIANA

HALL-NEAL FURNACE CO.
1322-42 N. CAPITOL AVE., INDIANAPOLIS 7, INDIANA

Please give me details at once of VICTOR Gas, Oil and Coal line, and
the extra profits I can make with an EXCLUSIVE VICTOR franchise.

NAME _____

FIRM _____

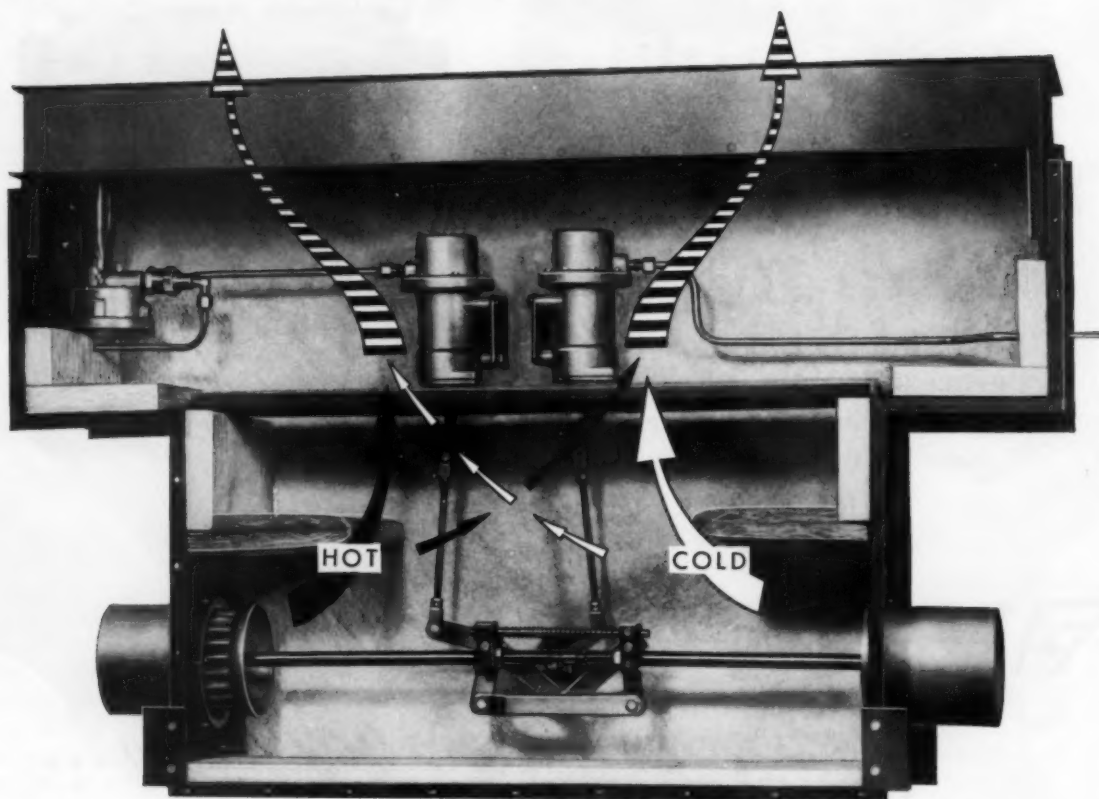
CITY _____

STATE _____

How **ANEMOSTAT**[®]

All-Air Constant Volume

High Velocity units operate



Here is a vitally important advance in the field of air distribution. Anemostat All-Air High Velocity units, *with new simple automatic controls*, deliver constant volume, no matter what the fluctuations from 1:4 or 4:1 on inlet pressures of either the hot or cold valve.

'Each unit is a single package including the controls and integral thermostats, if required. There is complete accessibility of all controls through removable diffusers. No access panels are required. Capacities of CONSTANT VOLUME units can be pre-set at the factory.

These Anemostat CONSTANT VOLUME units

- Assure scientific draft-free distribution of air.
- Are available in 100% induction units.
- Include Anemostat die-cast metal rocket-socket valves. More than 50,000 of these valves are in service, and not a single one has needed maintenance.

- Operate on standard 15 lb positive acting compressed air systems.

Each unit contains a micropressure regulator in the box, sensitive to .02 static pressure. This in turn operates a pneumatic motor and independently maintains by adjustment constant volume, while the wall mounted or integral thermostat controls the outlet mixture temperatures.

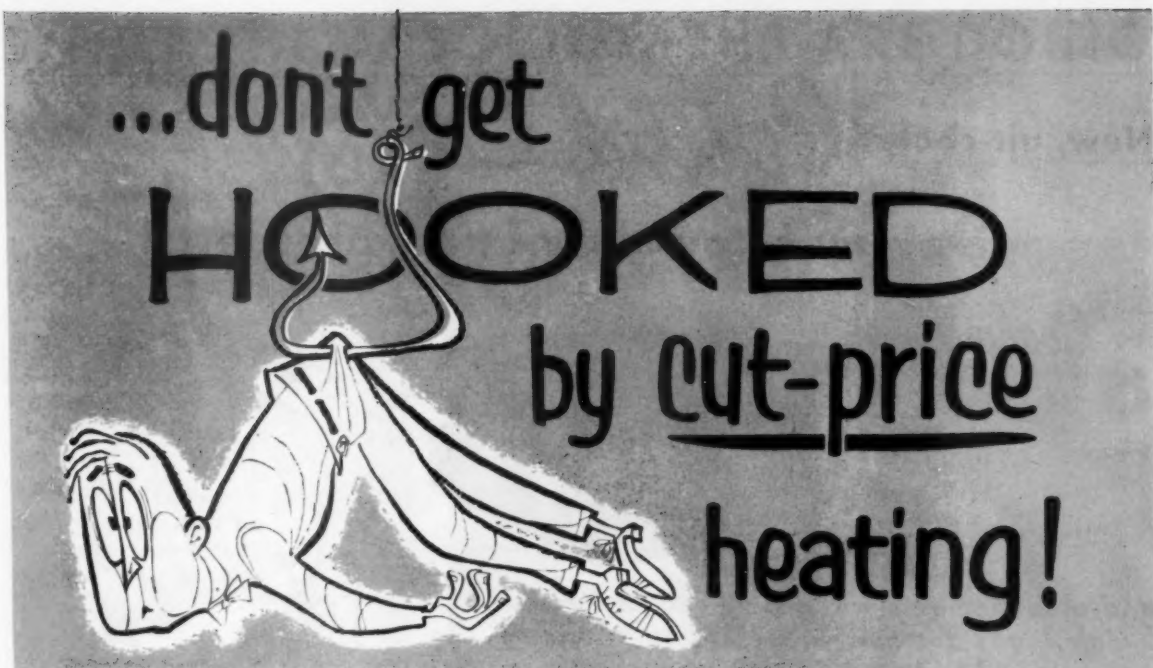


Write on your business letterhead for your copy of

New Anemostat Selection Manual 60

to Anemostat Corporation of America,
10 East 39 Street, New York 16, N. Y.

ANEMOSTAT: The pioneer of All-Air Velocity Systems



Tempting bait, this cut-price heating! But look out for the "hooks"! Service call-backs, for example. They'll dog you day and night when complaints of noisy operation, chilly floors, high fuel bills, untimely breakdowns and other symptoms of a cut-price heating job roll in. They can cost you *far more* than those few profit dollars you had in the job. And how just one shivering customer can tarnish your good name!

Refuse the bait when you're pressured on price. A quality Janitrol gas or oil furnace, in a system that follows National Warm Air Heating and Air Conditioning Association recommendations, costs just a little more to install—and *far less*

in the long run. What's more, it provides comfort, health and peace-of-mind no cut-price system can deliver. When you tell prospects these facts, they prefer quality every time. So *tell* them and *sell* them!

Right now, Janitrol dealers are cashing in on the newest, freshest advertising campaign in the industry. Big, colorful ads in leading national consumer and building trade magazines with big circulation in your market are upgrading demand for quality heating—the kind only Janitrol dealers can provide. Better ask your Janitrol representative about a Janitrol dealership in *your* market!



NEW JANITROL FEC WINTER CONDITIONERS WITH FAMOUS *Dura-tube* HEATING HEART!

For City Gases, LP and LP Gas-Air. Compact, clean, efficient. Fit confined spaces. Easy to install—fully serviceable from front. *Feature exclusive Dura-Tube Armored Heating Heart and Amp-i-fire Ribbon Flame Burner* for fast, thrifty heating, new freedom from burn-outs, cracking, rusting! All-steel cabinet with distinctive blue hammertone baked enamel finish has beauty and eye-appeal. Seven sizes from 60,000 to 180,000 Btu/hr. input. Matching summer cooling conditioner available.

... the best years of your business
begin with ...

AT THE 1957
A.S.H.A.E. SHOW
VISIT JANITROL
AT BOOTH 2

Janitrol
HEATING . . . COOLING

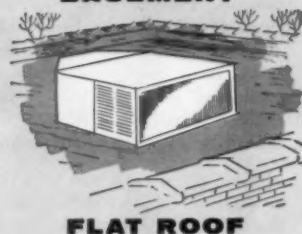
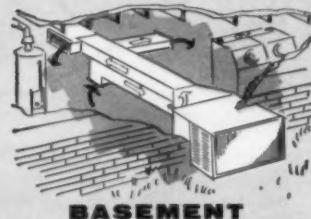
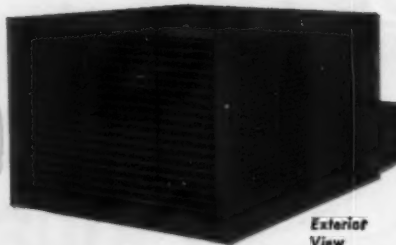
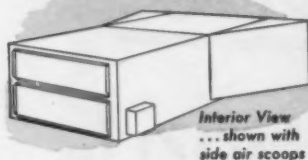
Janitrol Heating & Air Conditioning Division
Surface Combustion Corporation, Columbus 16, Ohio
In Canada: Moffats, Ltd, Toronto 15

Complete line of gas and oil furnaces, unit heaters, conversion burners, water-cooled and air-cooled summer cooling equipment, combination heating-cooling units.

New, air-cooled *Central Cooling Packs*

give you a townful of new prospects!

THE "Coolpak"
2 and 3½ H. P.



● Ideal for homes, stores and offices...suited for almost any location from roof to basement

It's ready to go...in hundreds of types of installations throughout your area...Century's New "Coolpak"!...with full rated cooling capacities of 22,000 and 36,000 BTU/hr. "Coolpak" gives whole-house cooling from out-of-the-way locations in attic, basement, dormer, hall, crawl space or roof. These versatile units may be tied into existing ductwork or installed with packaged, lightweight Fiberglas duct systems.

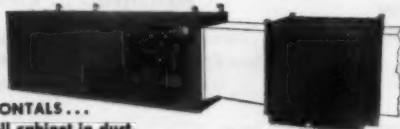
Now you can sell complete air-cooling for less than multiple small-space coolers. Costs less to operate, too...controlled by room thermostat. Has special low capacity cooling for mild weather conditions. The cabinet is sound insulated for whisper-quiet performance.

Installation?...It's easy! Only one connection for refrigerant lines is required. Wiring is simple. Get the facts...learn the many other sales advantages of the "Coolpak." Write us today.

... Joins Century Line

● 2, 3, or 5 H. P. ● Remote Air or Water-Cooled Condensers

Meet every heating-cooling need with the dependable Century line. To be sure they will do the job for which they're rated, every system is tested under typical operating conditions in Century's modern laboratories. As advertised to your customers, "you can count on Century for comfort."



Century

CENTURY ENGINEERING CORPORATION
CEDAR RAPIDS, IOWA Dept. 210-A

Please send me complete information regarding your new "Coolpak." ☐ I would also appreciate specifications and rating information on the Century Heating-Cooling line.

Company.....

Attention.....

Address.....

WHAT THE ASSOCIATIONS ARE DOING



ATLANTA BILTMORE HOTEL will be the scene of the Southeast Trade Exposition to be held Mar. 21-24. Dealers will attend from six states in the southeastern part of the country.



Southeast Trade Exposition Planned as Major Industry Event

THE MOST AMBITIOUS undertaking ever planned by the industry in the southeastern part of the country will be the Southeast Trade Exposition to be held in Atlanta, Mar. 21-24. The trade show is sponsored by the Sheet Metal, Roofing, Heating, Air Conditioning Contractors' Association of Georgia, which uses the letters SMERO HACCA as an identifying symbol.

Dealer-contractors from Alabama, Florida, Georgia, North and South Carolina, and Tennessee have been invited to the exposition. Some 76 booths in the exhibition hall of the Atlanta Biltmore Hotel will be occupied by national and regional suppliers and manufacturers of heating, cooling and roofing equipment. This will be the first large scale trade show and exhibit ever attempted in the area.

Drew Pearson to Speak

Drew Pearson, noted Washington reporter and commentator, will address a luncheon meeting giving his "Predictions of Things to Come." He will discuss among other things the problems of assistance to small business.

The future uses of atomic power in industrial and small shop operations, as well as in commercial and resi-

dential heating, will be covered by G. O. Robinson, Atomic Energy Commission.

Lorin Miller, consultant to manufacturers, and dean emeritus of engineering, Michigan State College, will discuss heat transfer, industrial ventilation, and air distribution. He will pay particular attention to what the industry is doing to overcome the problem of necessary oversizing of heating units in residential combination installations.

The topic "What Dealer-Contractors Are Doing to Beat the Price Squeeze" will be covered by Clyde Barnes, editor, American Artisan. He will tell how many firms in different parts of the country are improving their operations profitwise.

E. L. Scott, president of the Carolina Roofing and Sheet Metal Contractors Association, will moderate a forum on sheet metal, heating and air conditioning. Members of the forum panel will include three of the above speakers, Mr. Robinson, Dean Miller, and Mr. Barnes.

Labor problems and issues will be the subject of a talk by J. D. Wilder, executive secretary of the Sheet Metal and Air Conditioning Contractors' National Asso-

(Continued on page 154)



IS THE PALACE DUKE HERE? (\$500 REWARD*)

Is all lost?

Has Mr. Grate, Tracer of Lost
Furnaces, found the Duke at last?

Is there still time for some
International Dealer to win
the \$500?

Read on!

THE PALACE DUKE

Story so far: Just before the turn of the century, the Palace Duke, legitimate offspring of America's oldest heating (and cooling) family (International — since 1842), disappeared from the American scene.

There are some who say that the Palace Duke still exists, alone and forgotten in some dark cellar or second-hand shop. The International Heater Company holds with that belief — and is offering \$500 to the first person who finds the Palace Duke!

Mr. Grate, Tracer of Lost Furnaces, is hot on the trail of the Duke, but we're hoping that some International Dealer (present or future) will find the Palace Duke first and receive the \$500 reward!

We hope so.




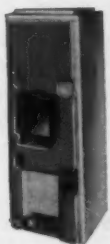
*If you locate one of these masterpieces with the name "Palace Duke" emblazoned right on the front — bag, borrow or steal a flash camera and take a picture of the installation as well as of the edifice in which it reposes. Rush the prints to your nearest International distributor for authentication and then rush them by mail to Mr. Grate, Tracer of Lost Furnaces, International Heater Company, Utica 2, New York.

The envelope of authenticated photographs bearing the earliest postmark will determine the winner.

This offer expires midnight, June 29, 1957.

NOW . . . TWO great International lines
s-t-r-e-t-c-h your profit season from

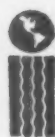
JANUARY.....DECEMBER

JANUARY	FEBRUARY	MARCH	APRIL
	SEE OUR EXHIBIT BOOTH 28 13th INTERNATIONAL HEATING & AIR CONDITIONING EXPOSITION FEB. 25 - MAR. 1, 1957		
GAS LO-BOY		OIL HI-BOY	ALL-YEAR AIR CONDITIONER
MAY	JUNE	JULY	AUGUST
			
HORIZONTAL COOLING UNITS	AIR COOLED COMPRESSOR	COMMERCIAL COOLING	COOLING PLENUM
SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
			
GAS HI-BOY	OIL LO-BOY	OIL HORIZONTAL	GAS COUNTERFLO

YES — TWO GREAT LINES! International of Utica has successfully engineered the finest lines of heating and cooling systems ever developed! Products of 115 years of experience, these new International home comfort systems pack more performance and engineering "firsts" than any units you've ever sold! The lines are great and the selling's great with International — your best bet for **more** profits all year long, YEAR AFTER YEAR! See your International Distributor — or write . . .

INTERNATIONAL HEATER CO., UTICA 2, N. Y.

Have you obtained your copy of our new COOLING MANUAL? It's fast becoming the standard text for dealers who want to master summer air conditioning. Illustrated, complete, easy to understand — \$1.00



INTERNATIONAL
of Utica

SINCE 1842

Well Known Speakers to Be Heard at Atlanta



J. D. Wilder



G. O. Robinson



Drew Pearson



John Doscher

ciation. His remarks will be concluded with a question and answer period.

Dealers will be told how they can profit from Operation Home Improvement in a talk by John R. Doscher, executive director of this national program designed to sell better living to the American public.

Also included on the program is a Short Course in Consumer Selling, covering such subjects as how to obtain leads, how to qualify leads, making presentations, and closing sales. J. L. Widener, president, Reliable Roofing and Home Comforts, Inc., will direct the course. He will be assisted by J. E. Wells, Southern Roofing and Insulating Co.; C. W. Bryan, Georgia Roofing and Supply Co., and J. L. Liner, Modern Roofing and Metal Works.

C. W. Nessell, Minneapolis-Honeywell Regulator Co., will make a presentation on the demonstration stage in the exhibition hall on the "Unexploited Market."

An invitation showing of exhibits will be held for architects and engineers, who will be invited to attend through their professional associations.

Special programs have been planned for wives and children.

S. California Promotion Launched

A PROGRAM OF public education in heating and air conditioning standards has been started in southern California by the Institute of Heating and Air Conditioning Industries. The campaign was launched with advertisements in leading newspapers on Jan. 13.

"Our interest is to inform the home owning and home buying public about the essentials of good heating and air conditioning installations," R. E. Harkens, managing director, said.

The Institute, which represents manufacturers, wholesalers and dealers, has retained an advertising agency and a public relations firm to help develop the promotion program.

A survey conducted by the Institute's advertising agency found substantial public apathy toward adequate heating and air conditioning.

The Institute's advertising program and public relations campaign are financed by a stamp plan. One dollar stamps are sold for each forced air unit and fifty cent stamps for each floor and wall furnace. The stamps are affixed to the equipment and the cost is passed along to the consumer. Mr. Harkens reported that the stamp plan is "about 80 percent subscribed."

Committee Meets on Standards

A MEETING OF the Oil Heat Institute steering committee on Commercial Standard 195-54 was held in Washington, D.C. It was announced that the National Warm Air Heating and Air Conditioning Association would print this new standard for oil-fired warm air furnaces.

The committee decided to restudy standards for oil-fired furnaces for less than standard clearances with a view to later inclusion in CS 195-54. When it is printed, all OHI members will receive a copy.

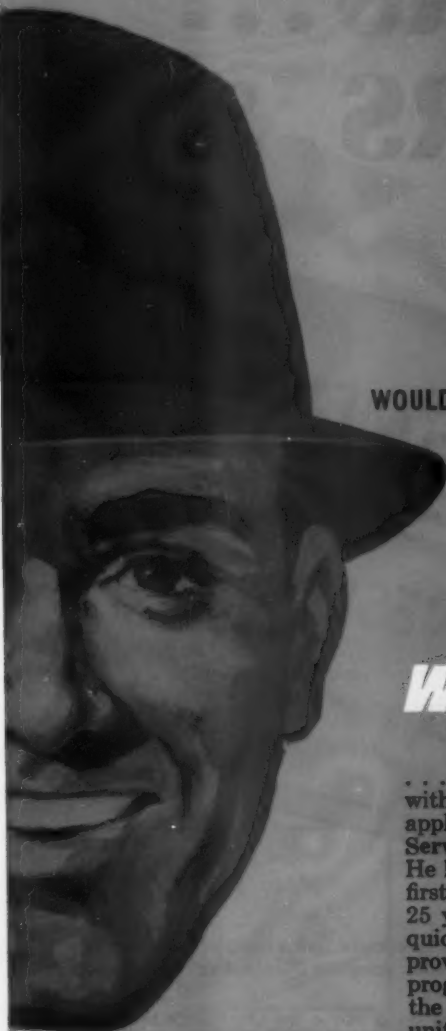
OHI is paying the cost of printing CS 75-56. These oil burner standards are being printed by the government under the supervision of the Department of Commerce. Copies will be sent to members when available.

Pamphlet 31 (NFPA), Installation of Oil Burning Equipment, is being revised to permit a single inside storage tank of up to 550 gallons. It will also permit the use of smaller tanks if desired.

Plans Revealed for Wisconsin Meeting

PLANS FOR THE 42nd Annual convention of the Sheet Metal Contractors Association of Wisconsin, Inc., reveal that it will be more than just a convention. The meetings to be held Mar. 11-13 in Milwaukee will include a Management and Sheet Metal Institute and Industry Show,

(Continued on page 159)



WOULD A SERVICE-FREE FUEL-UNIT HELP?

talk to the man from Webster

... he's visiting your plant and working with you regularly. Explore with him the application of Websters' dynamically new ServiceSaver fuel-unit to your burners. He has the background and knowledge of this first major improvement in fuel pumps in 25 years, and can give you the entire story quickly. ServiceSaver fuel-units could prove to be a milestone in the operational progress of your burners. Get all the facts on the ServiceSaver... it is the type of unit you'd design yourself.

*The man from Webster —
A good man to have around.*

INDUSTRIAL DIVISION

WEBSTER



ELECTRIC

RACINE - WIS

WEBSTER

SERVICESAVER FUEL-UNITS

completely interchangeable —
replaces any fuel-unit on the market
mounts in any position —
for easier changeover

360° port arrangement —
optional ports for convenience
convertible — one and two pipe
changeover without extra parts
low-friction seal — and lifetime
lubricated outboard seal bearings



franklin adv. A101



- ☐ Have **THE MAN FROM WEBSTER** contact us.
- ☐ Send Specification Sheet A9A1 on ServiceSaver Pumps.

Name _____
Title _____
Company _____
Street _____
City _____ State _____

DISTRIBUTORS... WHOLESALEERS...

Did You Know...

A MINIMUM INVESTMENT
OF MONEY AND SPACE
PUTS YOU IN BUSINESS WITH
CHAR-GALE

That's right... for a small investment (see example) you're ready to supply your dealers with complete "Gale-Aire" distribution systems for heating or cooling.

That \$4,000 investment will bring you a full Char-Gale truckload... actually all the material for 40 jobs, including plenum, fittings, duct and registers!

... And, check the small space required... less than 300 square feet, 8 feet high will store all you need to start increasing your sales and profits with Char-Gale.



Char-Gale

HERE'S HOW!

YOU INVEST...



Just \$4,000 and 300 square feet of warehouse space are enough to start a profitable increase in your business with the Char-Gale air distribution system. Immediately, with no big commitment on your part, you're in a position to offer your dealers the *finest* complete, simplified air distribution system on the market, for heating or cooling.

YOU GET...



1 TRUCK LOAD

A Char-Gale truck will bring *all* the elements of THE Char-Gale "Gale-Aire" comfort air distribution system *direct to your door*, in *one* convenient delivery. You don't have to be concerned about matching units from different sources, or hoping to coordinate a series of deliveries, because *it's all there*, in ONE CONVENIENT LOAD. Even after Char-Gale becomes a big part of your business, you can keep inventories down, because Char-Gale trucks travel anywhere in the country in a hurry. And you get truckload discounts on *any combination* of Char-Gale equipment.

YOU SELL...



All the material for 40 jobs, heating or cooling, is brought to you in your first Char-Gale truckload. This includes plenum, fittings, duct and registers. Everything is designed and manufactured for simple installation and efficient operation. And it comes to you completely packaged, for easy storage and protection against damage.

FREE



SEND FOR THIS NEW
ENGINEERING MANUAL

Now, in one convenient manual, all the information necessary for figuring heating and cooling jobs! The answer to a long-felt need, this new manual will be an invaluable tool for distributors, wholesalers, dealers, and architects alike. Write today, on your letterhead, for your free copy.

**Act Now, to Increase Your Business
and Your Profits, with Char-Gale!**

As you can see, it's not necessary to tie up your capital in large inventories of duct, fittings and registers. By stocking the simplified "Gale-Aire" system, you and your dealers get a complete air distribution line for either heating or cooling, that's easy to store, sell and install.

For further information, write us, today!

SEE YOU AT THE SHOW

Visit us in Booth 873 at the International Heating and Air Conditioning Exposition in Chicago, FEBRUARY 25 THROUGH MARCH 1, 1957.

MANUFACTURING COMPANY

ANOKA, MINNESOTA

For a new and unusual building...

*... an old and
reliable product*

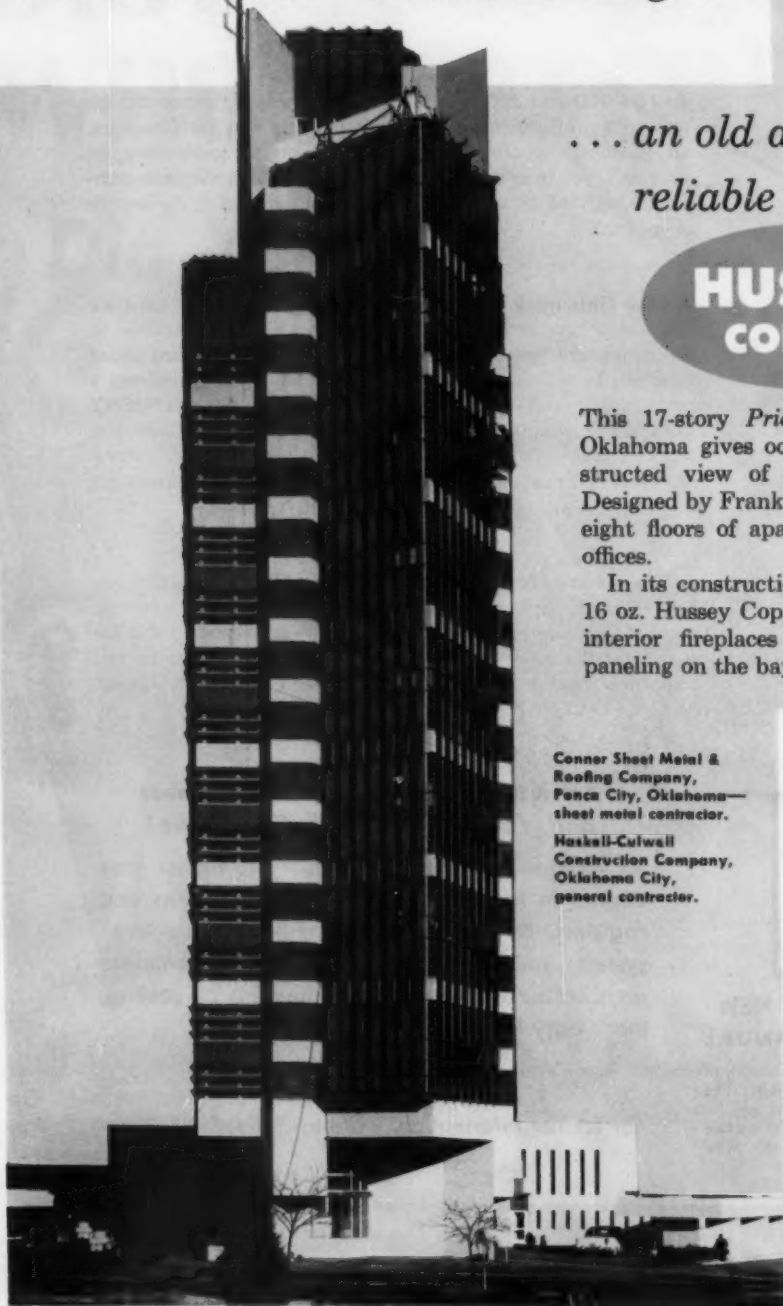
HUSSEY COPPER

This 17-story *Price Tower* in Bartlesville, Oklahoma gives occupants a 16-mile, unobstructed view of surrounding countryside. Designed by Frank Lloyd Wright, it contains eight floors of apartments and 13 floors of offices.

In its construction over 48,000 pounds of 16 oz. Hussey Copper were used for louvres, interior fireplaces and trim, and exterior paneling on the bay windows.

Conner Sheet Metal &
Roofing Company,
Ponca City, Oklahoma—
sheet metal contractor.

Haskell-Culwell
Construction Company,
Oklahoma City,
general contractor.



C. G. HUSSEY & COMPANY

(Division of Copper Range Company)
ROLLING MILLS AND GENERAL OFFICES
PITTSBURGH 19, PA.

7 Convenient Warehouses to serve you:

PITTSBURGH (19) 2850 Second Ave.
CLEVELAND (3) 5318 St. Clair Ave.
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CHICAGO (18) 3900 N. Elston Ave.
ST. LOUIS (1) Central Terminal Bldg.
PHILADELPHIA (30) 1632 Fairmount Ave.
NEW YORK, LONG ISLAND CITY (6) 34-39 Thirty-first St.

WITH THE ASSOCIATIONS

(Continued from page 154)

according to an announcement by R. S. Schmieder, executive secretary of the association.

The program will include panel discussions on tank vapor and fume control, fabricating, industrial sheet metal, estimating, costs, and pricing.

A slide presentation will be made demonstrating various methods and techniques used by shops throughout the country.

Members of the convention committee include: A. Demshar, Jr., chairman; Ben Brozek, co-chairman; N. W. Schier, L. W. O'Leary, Ken Young, all of Milwaukee; Elmer Grant, Clintonville; H. Gehrke, Shawano; Vince Kersher, Sr., Manitowoc.

Roofing and Sheet Metal Forum Held

THE SECOND annual Roofing and Sheet Metal Forum was held at North Carolina State College in conjunction with the mid-year meeting of the Carolinas Roofing and Sheet Metal Contractors Association. The program included discussions of various types of roofing, FHA loans, uses and design of aluminum, and roofing problems and requirements for state buildings.

Hall Elected President of IHACI

ROBERT N. HALL, Southland Heating and Air Conditioning, Inc., Long Beach, was elected president of the Institute of Heating and Air Conditioning Industries in southern California. The Institute also elected three vice presidents. They are Stanley Skafte, Utility Appliance Corp., for manufacturers; J. W. Burke, Burke Engineering Co., for suppliers, and Gordon L. Payne, E. L. Payne Heating Co., for dealer-contractors. Kenneth N. Robertson, Pacific Scientific Co., was named secretary-treasurer.

Elected to the board of directors to represent manufacturers were Paul Hammond, Holly Manufacturing Co.; Frank Spratt, Day and Night Manufacturing Co., and William L. Kell, manufacturers' representative.

Representing distributors on the board are Ed Myers, Prentiss Corp.; Glenn A. Ashburn, Ashburn Supply Co., and Reggie Hesling, Climate Distributors.

Directors elected from the dealer-contractor members include Morton Cousens, Modern Heating and Air Conditioning Co.; Thomas Pinatelli, Hammel Heating Co., and Ed Sales, O'Kane and Sales, Inc.

Joseph Staller, Southern California Gas Company, is the board member representing utility companies.

The newly elected president reported on the industry's outlook in southern California. He predicted a 75 percent increase in the dollar volume of Los Angeles county air conditioning installations in 1957. This compares with a 55 percent increase in 1956 over the year before.

Mr. Hall reported that the biggest air conditioning gains in the past year made in light commercial installa-

tions, like markets, shopping center units, medical and dental offices, and beauty shops.

His optimistic forecast, Mr. Hall said, is based on an anticipated gain of nearly 5 percent in southern California population, the growing need for replacement, increasing popularity of improved forced air heating, and the expanding desire of consumers for air conditioned offices and homes.

"We expect 85,000 new families in Los Angeles by the end of 1957 and 114,000 new families in the eleven southern California counties," Mr. Hall pointed out. "They are a ready market for heating and air conditioning equipment. So are the owners of older homes who spent over \$200 million in Los Angeles alone for home improvement last year."

Mr. Hall reported a gain of about 35,000 in forced warm air heating units made largely by local manufacturers and sold throughout the West in 1956. This indicates a growing demand for better warm air installations, he said.

San Diego contractors reported air conditioning sales were running 400 percent over 1955, with prospects of another 80 to 100 percent increase in 1957, according to an Institute survey.

Michigan Convention Plans Told

PLANS FOR the annual convention of the Michigan Heating and Sheet Metal Association, Inc., have been announced. The meeting will be held Mar. 21-22 at the Bancroft Hotel, Saginaw.

Featured speaker at the convention will be Charles E. Potter, U. S. Senator from Michigan. C. W. Nessel, Minneapolis-Honeywell Regulator Co., and chairman of the field investigation committee of the National Warm Air Heating and Air Conditioning Association, will also address the meeting.

Another convention feature will be a panel discussion on air conditioning. Topics covered in the discussion will include: 1) comfort, low humidity vs. low temperature; 2) register location, high sidewall vs. low sidewall; 3) condensers, air-cooled vs. water-cooled, and 4) tons or horsepower vs. Btu as a means of rating equipment.

Two Additional Short Courses Planned

IN ADDITION to the nine college short courses previously announced, the National Warm Air Heating and Air Conditioning Association has scheduled two more in Ohio and North Carolina.

A short course in warm air heating and air conditioning will be conducted Mar. 4-7 at Ohio State University. For information concerning this course write to W. B. Logan, director of distributive education, College of Education, Ohio State University, Columbus 10.

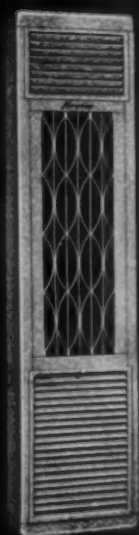
(Continued on page 162)

THE GREATEST HEATING SHOW ON EARTH!



... Will be in your store
when you display this

Humphrey **GAS HEATING EQUIPMENT**



Recessed
Wall Heaters

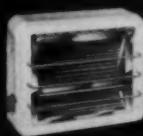


Model 40-G
Unit Heaters

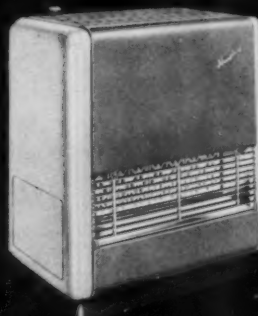
Series A Unit Heaters



Gas Lamps



Radiant
Wall Heaters



Radiantfire Circulators



Counterflow Furnaces

*"World's Most Respected
Gas Heating Line"*

Mf'd. by **GENERAL GAS LIGHT COMPANY** • Kalamazoo, Mich.

A NEW addition to the industry's most complete,
most versatile line ...



- Top Performance!
- Compact Design!
- Greater Economy!

NEW

CRISE

ACRO

**COMBINATION
FAN and
LIMIT
CONTROL**

FAL40D3

Unusually compact in design and easy to install, the new Crise combination fan and limit control offers all the features formerly found only in bulkier, higher priced controls. It has separate fan and limit terminals, so arranged to provide more space for easier, quicker wiring. The limit switch, equipped with gold plated contacts, may be used for line, low voltage or millivolt circuits. Fan and limit control settings and the fan differential are all adjustable, while the limit differential is fixed at approximately 20 degrees.

This control is available with summer fan switch as model FAL40D3 and without summer fan switch as FAL40D. It can also be furnished with watchspring type bimetal as FAL45D3 and FAL45D.

Now—with the introduction of these new controls, there's more reason than ever to switch to Crise. You'll find they're unequalled in quality, value and performance. Write or wire for details.

ACRO
MANUFACTURING COMPANY
CONTROLS DIVISION

COLUMBUS 16, OHIO

Plants at Columbus and Hillsboro, Ohio

WITH THE ASSOCIATIONS

(Continued from page 159)

The second course will be conducted at North Carolina State College on Mar. 11-14. Information on this course may be obtained from David B. Stamsel, assistant director, Division of College Extensions, North Carolina State College, Raleigh.

Detroit Chooses New Officers

NEW OFFICERS elected by the Detroit Warm Air Heating Association include: Albert Norris, Reliable Gas and Oil Service, president; Anthony Addis, A & A Heating and Stoker Service, vice president; Henry S. Craft, Craft Automatic Heating Service, secretary; William O. Smith, Ashton Products Co., treasurer.

Elected to the board of directors were Harold Bowie, Anthony Miller, Paul Turmel, Edward Stenske, A. W. Keats, Donald Mauerle, and E. J. VanFaasen.

At the association's January meeting, Fred A. Kaiser, vice president and general sales manager, Michigan Consolidated Gas Company, spoke on general merchandising. Mr. Kaiser is a past president of the National Association of Sales Executives.

Dealer Schools Held in North Carolina

TWO SCHOOLS in dealer-management were sponsored recently by members of the National Heating and Airconditioning Wholesalers Association in North Carolina. The schools were conducted under the supervision of the North Carolina Department of Distributive Education.

The first school was held at North Carolina State College at Raleigh, Jan. 27-29. East Carolina College, Greenville, was the site of the second school which was held Feb. 3-5.

Subjects covered at the school include: business organization, record keeping, financial statement analysis, overhead costs, human relations, advertising and sales promotion, estimating, bank relations, and credit and collection.

Regional Round Table Set in St. Louis

A REGIONAL Round Table Dealer Management Conference will be held in St. Louis at the Chase-Park Hotel on Feb. 20. The conference is sponsored by the distribution division of the Oil Heat Institute. Dealers from the central part of the country ranging from North Dakota to Texas and from Ohio to Alabama are expected to attend.

Topics for the panel discussion segment of the conference include: 1) natural gas competition, 2) degree-day procedures and fuel oil delivery problems, 3) selling oil heating equipment, 4) budget plans, credits, and collections, and 5) importance of effective service to the future of the industry.

Jack Becker, president of the Oil Heat Institute of St. Louis, and Bill Raith, distribution division vice-chairman for the Midwest, are co-chairmen of the conference arrangements committee.

National Apprentice Committee Meets

A MEETING of the National Sheet Metal Joint Apprentice Committee was held at the Bellerive Hotel in Kansas City. The committee is outlining a program which can be used by local committees in setting up their apprentice programs. Dave Todd is chairman of the national committee.

New York Institute Names Officers

OFFICERS FOR the Roofing and Sheet Metal Crafts Institute, Inc., New York, were elected at the January meeting. Louis Moskowitz, West Star Roofing and Construction Co., was named president; Abraham Geliebter, Albee Roofing and Sheet Metal Works, vice president; Milton Aksman, S. Axman and Son, vice president; Maurice Pels, Maurice Pels, Inc., vice president; Milton Magid, Charles Magid and Sons, corresponding secretary; Harold Fiedler, Fiedler Roofing Co., recording secretary; Irving Koppelson, N. Koppelson and Son, treasurer, and Benjamin Rosenbaum, New Chambers Tin-smith and Roofer, sergeant at arms.

In addition, two members were elected to the board of directors: Nathan Halpern, N. Halpern Co., and Walter Propper, Packer-Propper, Inc.

Election Held at Kansas City

OFFICERS FOR 1957 were elected by the Sheet Metal and Air Conditioning Contractors' Association of Greater Kansas City. Robert Peterson was named president; James Dukelow, vice president; Fred Smith, secretary; Lloyd Dowdall, treasurer. Elected to the board of directors are George Gieske, Leo Zahner, Jr., and Harry Basore. Mr. Basore was president of the association last year.

Florida Convention Date Set

THE ANNUAL CONVENTION of the Roofing and Sheet Metal Contractors Association of Florida will be held April 25-27 at the Terrace Hotel in Tampa. A meeting of the association's board of directors is scheduled for the first day of the convention.

Members attending the convention will be asked to consider several changes in the by-laws. Revisions proposed would increase the number of districts from five to eight and increase the number of directors from 12 to 16.

2 NEW
ANNULAIR® TYPE R
Non-linting
PILOT BURNERS

**VERTICAL or HORIZONTAL
 MOUNTING**



Annulair Series R18 at 700 Btu./hr. and Series R50 at 300 Btu/hr. (with Nat. gas) can be mounted either horizontally or vertically. The single, blue, forked flame heats the thermocouple and ignites the main burner. Each series has three tip angles for greater flexibility. Lint carried into the pilot burner is burned in the pilot flame and carried away by the pilot flame itself. Pilot screens are unnecessary because there is no primary air opening to clog.

Don't forget the other Type R pilots—the R10, R11, R14, R15, R16, and R17—whose various mounting brackets and three tip angles offer a wide range of mounting ease.

All Type R pilots can be used for Manufactured, Natural, and LP Gas.

See them all at the International Heating and Air Conditioning Show—Booth 864, or write Dept. 5A-1.

MILWAUKEE GAS SPECIALTY CO.
 MILWAUKEE 1, WISCONSIN

**"We're ready to buy
air conditioning IF
you show us how
we can afford it!"**

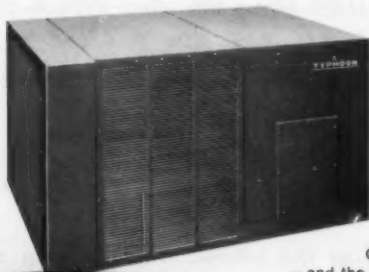


Sell them TYPHOON ECONOMAIR

It's the biggest little air conditioner you can sell.

Delivers more comfort per square foot...per dollar cost ... than any other unit around. You save many man-hours on installation because the Typhoon Economair is self-contained — you save costly service calls because Typhoon performance is trouble-free. Suddenly you have twice as many prospects for air conditioning — and **it's easy to sell 'em when you tell 'em** about these precision engineering and exclusive economy features:

Booth 413-15-17 ASHVE SHOW Chicago



- Bigger condensing surface — more cooling at less cost.
- Oversize coils wring out more moisture from the air.
- "Turbulator action" in condenser and cooling coil maintains top performance.
- Centrifugal blower reduces static resistance problems by protecting fan motor from overload.
- Compact — less than 4' x 3' x 2'.

Get the lowdown on how easy it is to sell the Typhoon Economair — and the entire Typhoon line. It's especially easy now with Typhoon's A. B. C. credit plan for you to offer your customers. Write for full details.

TYPHOON

AIR CONDITIONING COMPANY

505 Carroll Street
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HUPP
Corporation

Photo shows new Lima Super 72
Extended Baseboard Diffuser
with automatic pushbutton damper



Unretouched test photo shows the quality of Lima's electrostatically applied permanent finish. After hard bending of the metal with pliers, the beautiful finish has not chipped or flaked.



Exclusive built-in automatic pushbutton damper on the Lima Super 72 runs the full length of louver openings . . . provides fingertip volume control and uniform diffusion at all settings.



Extra heavy construction of Lima's horizontal louvers, and double spring tension on the full length damper, both eliminate any rattling or whistling at the higher air velocities needed for cooling.

**sell more complete
installations with the**

Lima Quality and Performance Story

Whenever you see a prospect about a heating or cooling job, you will have a real sales tool in the Lima Quality and Performance Story.

Instead of cutting corners to meet competition, you can confidently talk up quality . . . showing the extra quality construction and permanent beauty of Lima diffusers . . . pointing up the efficient performance that assures lasting comfort and satisfaction.

Take a Lima diffuser along on your next call and see how it helps you sell the furnace, the ductwork and the complete installation. It's the showpiece of your job—installed in the living quarters where it is seen every day by everybody in the home.



Diffusion pattern of two foot Lima Super 72 showing proper throw and spread for real indoor comfort at the living level in heating and cooling.

Lima

REGISTER COMPANY • LIMA, OHIO

sold exclusively through heating manufacturers and wholesalers



Coming Events

February

- Feb. 25-27—Ohio Sheet Metal Contractors' Association, annual convention. Cleveland Hotel, Cleveland. Dion E. Mannen, Chairman, 9104 Woodland Ave., Cleveland.
- Feb. 25-Feb. 28—American Society of Heating and Air-Conditioning Engineers, 63rd annual convention. Conrad Hilton Hotel, Chicago. A. V. Hutchinson, Executive Secretary, 62 Worth St., New York 13.
- Feb. 25-Mar. 1—International Heating and Air-Conditioning Exposition, International Amphitheater, Chicago. E. K. Stevens, Exposition Manager, International Exposition Co., 480 Lexington Ave., New York 17.

March

- Mar. 4-7—Ohio State University college short course, Columbus. W. B. Logan, director of distributive education, College of Education, Ohio State University, Columbus 10.
- Mar. 6—National Warm Air Heating and Air Conditioning Association of Canada, annual convention. Beautiful Seaway Hotel, Toronto. D. M. W. Wilson, managing director, 4195 Dundas St., W., Toronto, 18, Ontario.
- Mar. 11-13—Sheet Metal Contractors' Association of Wisconsin, annual convention. Hotel Schroeder, Milwaukee, R. S. Schmieder, Executive Secretary, 8320 W. Blue-mound Rd., Milwaukee.
- Mar. 11-14—North Carolina State college short course, Raleigh. David B. Stamsel, assistant director, division of college extensions, North Carolina State College, Raleigh.
- Mar. 21-22—Michigan Heating and Sheet Metal Association, Inc., annual convention. Bancroft Hotel, Saginaw. N. J. Biddle, secretary, 3035 E. Grand Blvd., Detroit 2.
- Mar. 21-24—Southeast Trade Exposition, sponsored by Sheet Metal, Roofing, Heating, Air Conditioning Contractors' Association of Georgia. Atlanta Biltmore Hotel, Atlanta. B. L. Noblitt, Executive Secretary, P.O. Box 1196, Augusta, Ga.

- Mar. 25-28—Michigan State College short course, E. Lansing. C. H. Pesterfield, chairman, Michigan State College, E. Lansing.

April

- Apr. 1-4—Long Island T. and A. Institute college short course, Farmingdale, L.I., N.Y. Wilson P. Merritt, chairman, Long Island T. and A. Institute, Farmingdale.
- Apr. 15-18—Purdue University college short course, Lafayette, Ind. Fred Morse, chairman, Purdue University, Lafayette.
- Apr. 8-11—University of Omaha college short course, Omaha. S. V. Williams, chairman, University of Omaha, Omaha.
- Apr. 15-18—Syracuse University college short course, Syracuse, N.Y. Miss Eleanor Ludwig, chairman, Syracuse University, Syracuse.
- April 26-27—Sheet Metal, Air Conditioning and Roofing Contractors' Association of Pennsylvania, annual convention. Lycoming Hotel, Williamsport, Pa. Earl W. Liebermann, Secretary, 1411 Merchant St., Ambridge, Pa.
- Apr. 29-May 2—University of Connecticut, Storrs, Conn. Carlson E. Crane, chairman, University of Connecticut, Storrs.

May

- May 3-7—Western Air Conditioning, Heating, Ventilating and Refrigeration Conference and Exhibit, Shrine Exposition Hall, Los Angeles. Arthur J. Hess, chairman, 3443 S. Hill St., Los Angeles.
- May 6-7—National Heating & Airconditioning Wholesalers, Inc., spring meeting. Broadmoor Hotel, Colorado Springs, Colo. W. R. Bull, Executive Director, 1200 W. Fifth Ave., Columbus, O.
- May 15-18—Sheet Metal and Air Conditioning Contractors' National Association, Inc., annual convention. Edgewater Beach Hotel, Chicago. Joseph D. Wilder, Executive Secretary, 170 Division St., Elgin, Ill.



The most important material of all!

Many items are going into the building of our new Sidney plant — steel, brick, cement, glass. But you cannot see the one element that makes the entire project possible — FAITH.

We have faith in the fine Copeland organization — from factory workers to our jobbers and dealers.

We have faith in the quality of Copeland products.

We have faith in the future of our industry, as the demand for refrigeration and air conditioning constantly increases.

We have faith in the growth of America and the system of free enterprise which has given us the highest standard of living in the world.

Manufacturer of the heart of America's
finest commercial refrigeration
and air conditioning

SINCE 1918

Copeland
REFRIGERATION

CORPORATION, Sidney, Ohio

SEE US AT BOOTHS 1220 and 1224
International Heating and Air Conditioning Exposition
International Amphitheater, Chicago

ADVANCED DESIGN A-100R
New A-100R switch-type safety relay and 250 mv pilot generator give new profit edge to manufacturer and installer

ADVANCED DESIGN G-250
New pilot generator with 26S pilot burner... interchangeable with single couple mounting

A-100 Manual Reset Switch-Type Safety Relay

For 100% Shut Off — Pilot Line Connects To Built-in "B" Valve in A-100 Manual Reset Model

Available in single couple or pilot generator models.

INSTALLERS! MANUFACTURERS!

*Profit from new
advanced design
switch type safeties*

Installing or Servicing Gas Furnaces?

Make big savings with General Controls' new A-100R Safety Relay with automatic reset! First, you'll eliminate a lot of unnecessary service calls on false safety shut-downs. Second, you'll find extra *folding-money profits* in replacing old fashioned electric safeties with the low cost A-100R. Ask your wholesale supplier for this profitable General Controls A-100R—G-250 "safety package" today!

OEM's Benefit Too! There's a wonderful system simplicity for original equipment manufacturers when they use the A-100 Series switch-type safeties. Eliminated are the double and triple inventories and pressure-drop problems of mechanical safeties. Labor is less. Material is less. And...when you use the G-250 Generator—26S Pilot Burner combination, you lower costs even more!

And Yet Another Advantage: In the Manual Reset version of the A-100, there's a brand new feature...100% safety shut-off. A built-in "B" Valve is available right in the safety relay!

SEE THE A-100 SERIES NOW! Whether you are servicing or manufacturing...see your wholesaler or call in your nearby General Controls Factory Representative.



America's Finest Automatic Controls
for Home, Industry and the Military

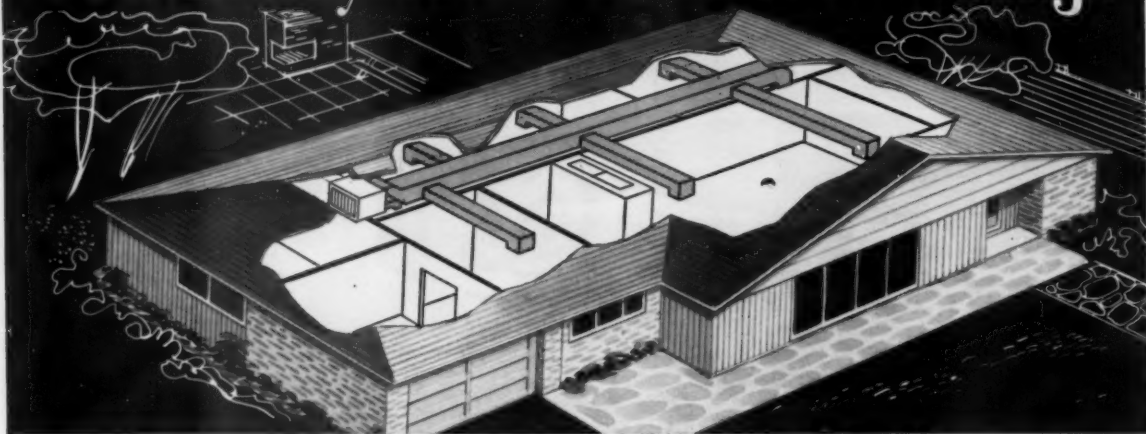
GENERAL CONTROLS

Factory branch offices serving all principal cities of the United States and Canada.

Five Plants: Glendale, California • Burbank, California • Iron Mountain, Michigan • Skokie, Illinois • Guelph, Canada •

NOW! For really low-cost, easy installation
with top profit margin...

Amana® Central-System Air Conditioning!



**Air cooled, needs no water! • Fits in almost anywhere!
Cools entire homes, large or small!**

Here is the highest-quality, most *versatile*, entire home air conditioning system on the market today! It's from Amana—world famous specialists in the field of refrigeration products for the home.

For you—new Amana Central-System Air Conditioning means *top-profit margin* on every sale and installation you make. And Amana *quality* assures minimum maintenance—years of untroubled effi-

ciency and dependable operation!

So Easy to Install! This amazingly flexible system adapts easily, conveniently to almost any home's needs. Tucks away quickly, with minimum cost and effort, in attic, basement, utility room, even crawl space!

No Big Crew Needed! You can install Amana Central Systems any time of the year. Spreads labor costs, cuts waste time—gives you a better margin of profit!

New Prefab Air Duct System!

Where existing duct work can't be used—or supplementary ducting is needed—Amana's optional new Fiberglas air duct system can be installed easily and conveniently.

Entire-Home Cooling Capacity!

Ultra-powerful 2- or 3½-horsepower models will cool homes up to 2200 square feet in area. Multiple units provide ultimate in flexibility and cooling for larger homes.

**Add new Amana Central-System Air Conditioning to your line today—
and you'll add new sales, new profits, automatically!**



Producers of World-Famous Amana Freezers • Freezer-Plus-Refrigerators
Built-In Freezers and Refrigerators • Room Air Conditioners
Central-System Air Conditioning • Deepfreeze® Chest Freezers
AMANA REFRIGERATION, INC., AMANA, IOWA

Amana Refrigeration, Inc., Amana 49, Iowa

Gentlemen: I am interested in knowing more about: Amana Central-System Air Conditioning.

Name _____

Company _____

Address _____

City _____ State _____

The words Amana and Deepfreeze are trademarks, Reg. U. S. Pat. Off.

From this moment on... Ordinary Heating is History!



Year... After Year...
After Year... You'll
be Glad You Sell
Timken-Scaife
Today.

NEW ROTORAMIC OIL HEAT

Out of the Timken-Scaife research labs comes this newly improved version of the famous *Wall-Flame Burner*... the dramatic application of Thermodynamics that makes home heating as modern and exciting as stratoflights and sports cars... makes ordinary heating past history!

TIMKEN, for over 30 years the leader in home heating, and **SCAIFE**, a leading manufacturer since 1802, pool their know-how to bring you the most important advance in Oil Home Heating... the new concept of *Rotoramic Action*.

Triple Guarantee in Writing... *Mono-Rotor* guaranteed for life... *Fuel Savings*... 10 year *Heat Exchanger* guarantee.



Perhaps there's a franchise available in your community? Write for information, today!

**if your future is
in air conditioning
your fortune is in *Carrier***



**No pierda el barco!
means "don't**

Don't miss the boat on the *Caribbean Cruise*

Win an eleven-day Caribbean vacation cruise on the "Queen of Bermuda" for yourself and your wife! (We've chartered the entire ship—funnels, anchor and crew to make sure you have an unforgettable holiday.)



Enjoy a relaxing, bracing ocean trip, the finest cuisine, a visit to sunny Nassau, "the Crown Jewel of the Golden Bahamas," tour picturesque Jamaica, see the exotic sights of colorful Havana, "the Paris of the Western World."

ELEVEN GLORIOUS TROPIC HOLIDAYS!

All Carrier dealers are in on this contest. You're eligible, no matter what your product line—Room Air Conditioners, Residential Air Conditioners,

Commercial Air Conditioners, Applied Systems, Icemakers.

Every single expense aboard ship will be paid by Carrier. You won't be able to spend a cent. Ashore Carrier will pick up the tab, too. The only money you'll spend will be for family gifts.

The Tropic Holiday Contest lasts all year, ends in November. No panicky deadlines, no pressure to produce overnight. Any dealer can win in his own good time. No pierda el barco!

And don't miss the boat on becoming the most successful

Here are ten good reasons why the Carrier franchise is the most valued in the industry.

1. A Carrier dealer gets engineering help from his distributor on difficult jobs. His distributor knows the air conditioning business and he understands dealer problems.
2. A Carrier dealer receives continuous training in the most modern techniques for air conditioning engineering, selling, installing and servicing.
3. A Carrier dealer can obtain expert management consultation on any phase of his business operation. Assistance in accounting, financing, inventory control, personnel compensation, etc.
4. A Carrier dealer doesn't have to tie up his own capital in inventory. Under a special Douglas Guardian Warehouse Plan he enjoys the benefit of having the equipment he needs on hand and yet he pays nothing, not even interest, until the equipment is sold.
5. A Carrier dealer is protected against price reductions

miss the boat!"



Carrier dealer's

Mexican Holiday

Tropic Holiday

Win a six-day all-expense-paid holiday in Mexico for you and your wife. All dealers and dealer salesmen are eligible. And when we say "all-expense-paid" that's exactly what we mean!



From the airport nearest your home you'll fly in luxurious comfort to Mexico City. You'll visit the Capitol, National Palace, the Cathedral and Sacred Museum, and the flower market. You'll see the floating gardens of Xochimilco, Mexican bullfights, the Shrine of Guadalupe, the Monastery of Alcoman, the holy city of the Aztecs and Toltecs, the Pyramid of the Sun.

Wherever you go you'll be wined and dined at Carrier expense. You may wish to buy some gifts

for your family, but that's the only money you'll be able to spend.

Carrier dealers are eligible as well as all dealer salesmen. You're in, no matter what your product line—Room Air Conditioners, Residential Air Conditioners, Commercial Air Conditioners, Applied Systems, Icemakers.

Just look at your chances of going on this fabulous Mexican Holiday trip: *There is no limit to the number of dealers who can win!* No pierda el barco!

air conditioning dealer in town—a *Carrier* dealer

on unsold inventory at all times. If he buys his equipment before the selling season begins this price-protection can last for up to eleven months.

6. A Carrier dealer enjoys the most liberal product warranties in the business. These high allowances assure customers' satisfaction without affecting dealer profits.

7. A Carrier dealer gets sales support from the Carrier National Buyer Organization. This team sells national firms who require air conditioning installations in the dealer's town, turns the order over to the dealer.

8. A Carrier dealer is backed with hard-selling advertising support. Both nationally in magazines and in television, and locally in newspapers, radio, television; in fact, *wherever* he wants advertising support.

9. A Carrier dealer enjoys unequalled prestige—his products are known and respected. The Carrier dealer is Mr. Air Conditioning wherever he's located. And judging from the potential market for air conditioning, his future growth and success are unlimited.

plus →

10. The largest selection of air conditioning equipment on the market.

If it can be air conditioned, Carrier dealers have what it takes!



Room Weathermakers
Both window and console types—over 25 models



Year-round Weathermakers
Single, compact units that supply both heating and cooling



Summer Weathermakers
Air-cooled units that add cooling to any type of heating system



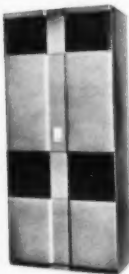
Winter Weathermakers
The "Furnace with a Future"—all types and sizes in oil and gas fired models



Self-contained Weathermakers
Water-cooled packaged air conditioners in capacities from 2 to 5 hp.



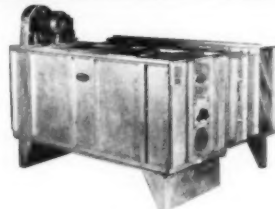
Large Self-contained Weathermakers
Water-cooled packaged air conditioners in capacities from 7½ to 20 hp.



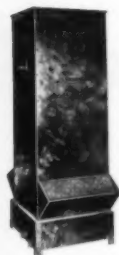
Air-cooled, Self-contained Weathermakers
Specifically designed for waterless operation. Capacities from 5 to 15 hp.



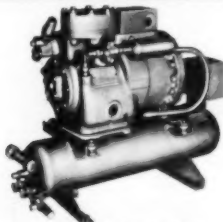
Automatic Icemakers
13 models in a complete line for cubes, crushed ice, flakes, and chips



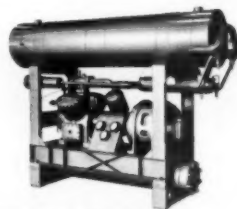
System Weathermakers
Seven sizes for air conditioning in custom-designed systems. 5 to 125 tons.



Cooling towers
Designed to mate perfectly with Self-contained Weathermakers—3 to 15 hp.



Hermetic condensing units
Water-cooled models from ½ hp to 10 hp and air-cooled from ¼ hp to 3 hp.



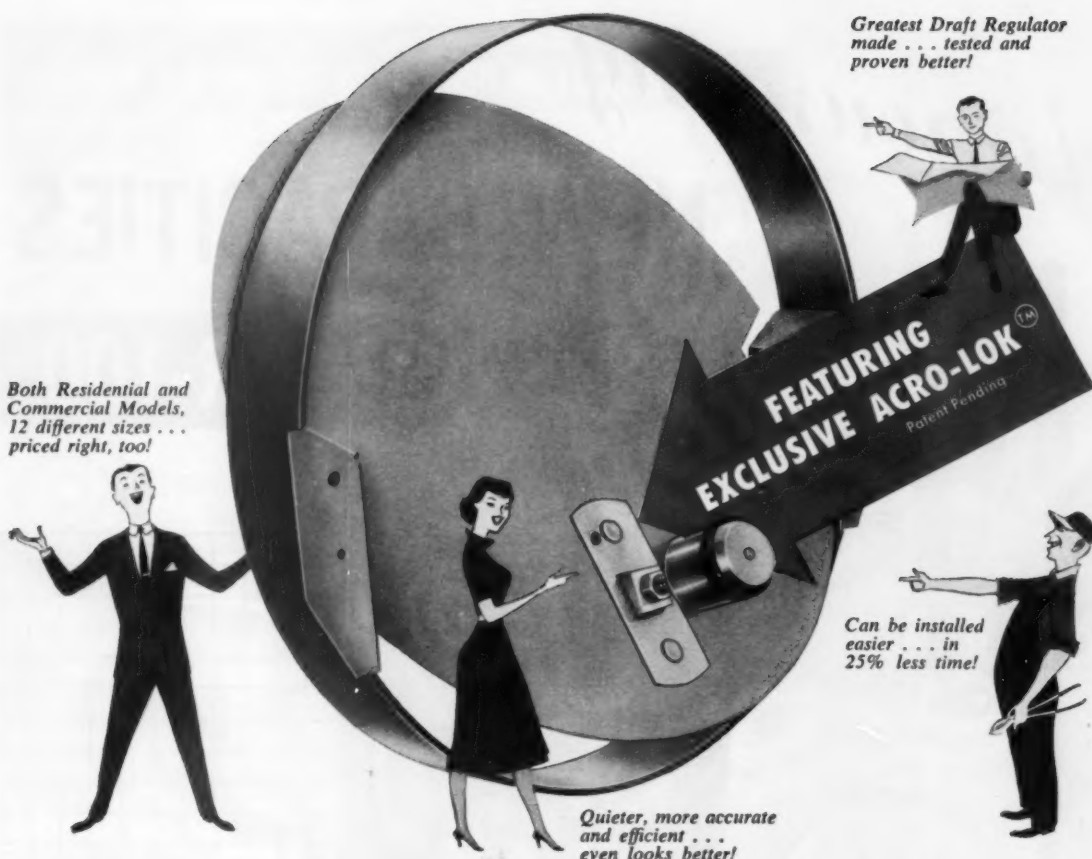
Water cooling machines
Completely "packaged" refrigeration for air conditioning duty. 5 to 150 hp.

A Carrier dealer never has to pass up a job because he doesn't have the right equipment for it



Profits, prestige and tropical holidays! No pierda el barco!
Like to become a Carrier dealer? Your Carrier distributor is the man to see.

Both Residential and Commercial Models, 12 different sizes . . . priced right, too!



Greatest Draft Regulator made . . . tested and proven better!

Can be installed easier . . . in 25% less time!

Quieter, more accurate and efficient . . . even looks better!

NEW Complete Line of Steinen Draft Regulators ...7 Ways Better Than Any Other Make!

Here's exciting news for every Jobber, Dealer and Heating Manufacturer! Now . . . after three years of engineering research and development . . . a complete line of *Residential and Commercial Draft Regulators* that are vastly superior to any other make.

Dealers are enthusiastic because Steinen means faster, easier installation with less troublesome service calls. Jobbers like the saving in space — up to 40% — resulting from the unique packaging of *all* commercial sizes . . . and the 3 and 1 combination of residential sizes that saves space, cuts inventory . . . means less money tied up in stock! Manufacturers are excited, too, because here's a competitively priced quality line that helps assure highest efficiency and better over-all operation of *their* units . . . at no extra cost.

See for yourself . . . then compare. There is no finer constructed or more competitively priced regulator on the market. Write for more information today!

HERE'S PROOF OF STEINEN SUPERIORITY*

	STEINEN	BRAND A	BRAND B
One-piece gate construction for more accurate, quieter operation	Yes	No	No
Exclusive Acro-Lok feature eliminates gate variations	Yes	No	No
Vertical, diagonal and horizontal mounting without changing parts**	Yes	No	No
Only one calibrated scale from .02" - .08" with push-pull adjustment.**	Yes	No	No
Double "non-jam" gate stop—completely independent—prevents jamming	Yes	No	No
Unique packaging of commercial sizes—saves up to 40% in space	Yes	No	No
Combination draft setter—sets draft—automatically stabilizes balance	Yes	No	No

*Tested and proven better by six leading manufacturers.
**A feature of the residential sizes only.

See this new complete line at N & AC
Chicago — Booths 329-331.



WM. STEINEN MFG. COMPANY 41 Bruen St., Newark, N. J.
SINCE 1907

Warehouses in Boston, Chicago, Detroit, Minneapolis, New York, Philadelphia and Portland, Ore.

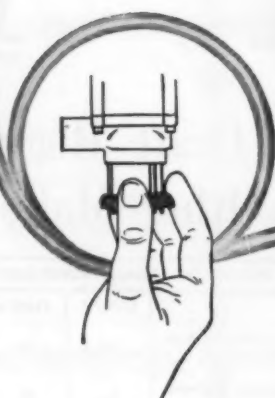
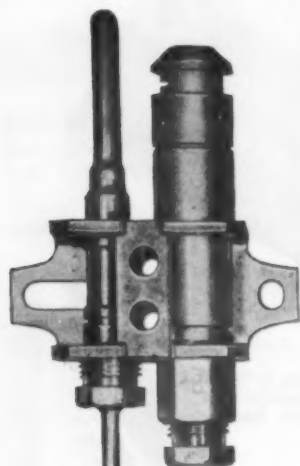
DRAFT REGULATORS • OIL BURNER NOZZLES • NOZZLE ADAPTORS, KITS & STRAINERS • FLAME MIRRORS • ELECTRODE ASSEMBLIES
Copyright 1957 W. S. Co.

Announcing

NEW CAPACITIES

THERMAC

SR-100



**CAPACITY GOES UP
CONTROL COST
(Per Cu. Ft.) GOES DOWN**

**COMBINATION PRESSURE
REGULATOR AND THERMO
ELECTRIC PILOT**


AGA Certified

THERMAC
 **COMPANY**

800 East 108th Street
Los Angeles 59, California

24 years experience
building gas controls.

Responsibility of leadership in the controls business demands constant research and progress for improvement in product performance and lower cost. This, we have achieved and proudly offer to appliance engineers.

Our engineers have built into the Thermac SR-100 a new ability to handle a broader range of furnaces and appliances. So marked is this increased capacity that now the SR-100 can be used where here-to-fore a more expensive control has been required. This increased capacity is not a mere "technical" increase of 5% or 10% but a great deal more, as will be observed when testing the new unit.

Carrying A.G.A. Certification and patent application, the unique method which we employ to increase flow capacities is now a part of all SR-100 controls at no extra cost.

You are invited to request samples of this new SR-100 for testing and comparison.



TIME TO PROMOTE DUST-STOP FILTERS AGAIN!

Take your golden opportunity to sell more *replacement* filters. Right *now* thousands of warm air furnaces in your area are gasping along with dirt-choked filters. Sell *one* golden Fiberglas* Dust-Stop* Filter to every prospect and you could take a mid-winter vacation on the profit. And many furnaces need *two*.

You must remind your customers . . . but we make it

easy—with free Fiberglas promotional pieces. Our Mid-winter Dust-Stop Filter Broadside lists the promotional pieces available and tells how to use them. If you haven't already received the Broadside, ask your Fiberglas salesman—or write direct to Owens-Corning Fiberglas Corporation, Dept. 35-B, Toledo 1, Ohio.



©T.M. (Reg. U. S. Pat. Off.) O-C. F. Corp.

DUST-STOP AIR FILTERS



A.O. Smith Permaglas ANNOUNCES

*Two new
money makers for 1957*



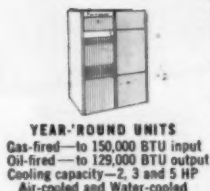
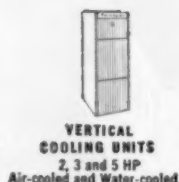
A THRIFTY SELF-CONTAINED COOLING UNIT IN SIZES UP TO 3 1/4 HP

With a size for every requirement and a price that makes central air conditioning available to thousands more of your prospects, the new *Permaglas Self-Contained* may be installed in the attic, basement or wherever most convenient. The *Permaglas Self-Contained* takes the problem out of "problem cooling installations"—even in boiler-heated homes—because it can operate independently as well as in conjunction with the warm air heating system. Air-cooled... 1 1/4, 2 and 3 1/4 HP sizes.



A REMOTE AIR CONDITIONING PACKAGE FEATURING "LAWN LEVEL" AIR INTAKE

The 1957 *Permaglas Remote* is fairly brimming with exciting new features, to make selling a pleasure and installation an easy task. Efficient up-draft design—with cooling air entering at *lawn level*—keeps condensing unit operating at top capacity. Matching *Permaglas Evaporators* are available in a wide variety of types and sizes to fit any warm air unit... to overcome any air handling problem. Air-cooled... 1 1/4, 2, 3 and 5 HP sizes.



Plus a Full Line of Proven *Permaglas* Favorites



HI-BOYS

Gas-fired—to 200,000 BTU input
Oil-fired—to 156,800 BTU output

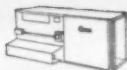


LO-BOYS

Gas-fired—to 200,000 BTU input
Oil-fired—to 156,800 BTU output



DOWN-FLOWS



HORIZONTALS

Gas-fired—to 140,000 BTU input
Oil-fired—to 252,000 BTU output



HOME HEATING BOILERS
Gas-fired—to 420,000 BTU input



GAS CONVERSION BURNERS
to 345,000 BTU maximum input



CONVERSION OIL BURNERS
to 3.00 GPH firing rate

With the addition of these outstanding new models, *Permaglas* is now—more than ever—your assurance of the right cooling unit at the right price. And remember that every *Permaglas* heating and cooling unit is fully approved and fully guaranteed by the world-famous A. O. Smith Corporation.

Fill out and return the attached coupon right away, for top air conditioning profits in 1957!

Permaglas is on its way

...Are You Aboard?

Through research  ... a better way

A.O. Smith

Permaglas Div., Kankakee, Ill.
International Div., Milwaukee, Wis.

Sales Department, Permaglas Division, Dept. AA-257
A. O. SMITH CORPORATION, Kankakee, Illinois
Please send me full information on the new Permaglas Air Conditioning line for 1957.

Name.....Title.....
Company.....
Address.....
City.....Zone.....State.....

makers of famous **Permaglas** glass-lined water heaters... **Burkay** commercial water heaters

High draft of Van-Packer Chimney assures best furnace operation

Independent laboratory tests prove Van-Packer Factory-Built Masonry Chimney produces more draft initially and continuously than other flues of the same cross-sectional area and height. This means your heating equipment will operate more efficiently with the Van-Packer than with other types of chimneys.

There's a good, clear profit for you on each chimney sale. What's more, the Van-Packer Chimney helps you keep full profit on your heating installation because Van-Packer's greater draft cuts needless furnace service call-backs.

Enjoy the satisfaction of giving your customer the finest chimney available, Van-Packer Factory-Built Masonry Chimney. Its masonry construction makes it the safest, most efficient, most attractive prefabricated chimney on the market today.

Immediate delivery from your local heating jobber, no job delays. See "Chimneys—Prefabricated" in Yellow Pages, or write Van-Packer Company for Bulletin RS-1-11.

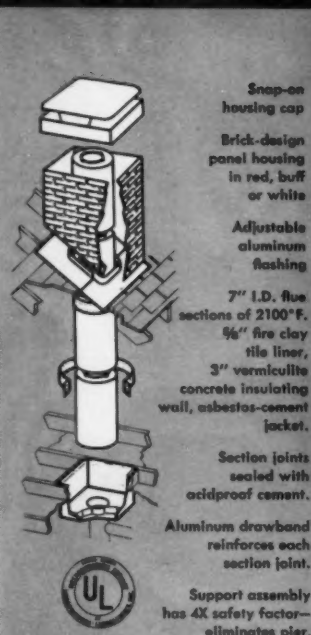
Van-Packer
FACTORY-BUILT MASONRY
Chimney

Van-Packer Company
Division of The Flintkote Company
P.O. Box No. 306, Bettendorf, Iowa
Phone: 5-2621

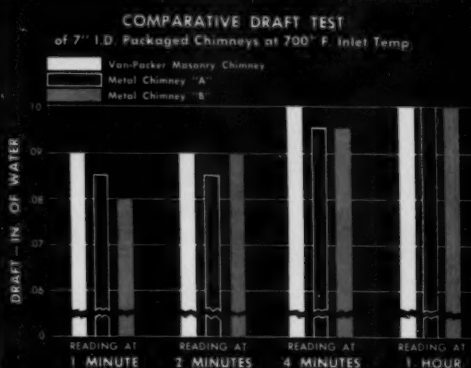
Also Manufacturers of
Van-Packer Fire Clay Tile Gas Vent



Masonry Van-Packer Chimney vents furnace, water heater and incinerator safely and efficiently.

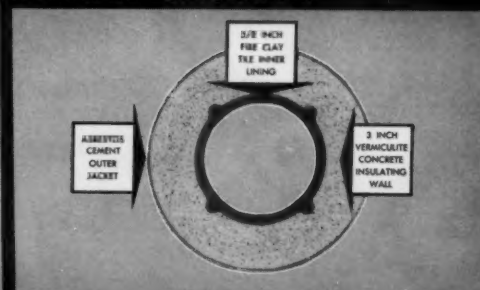


UL listed for all fuels, all home heating plants and incinerators, approved by major building codes.



Tests prove Van-Packer gives more draft than any other chimney or flue

Heavily-insulated masonry construction is why Van-Packer gives greater draft





*Stainless Steel
cutting information...*

***Don't dawdle when sawing**



SOME MACHINISTS (the slow, careful type that are so hard to find) like to saw metal very slowly. These men remember old instructions about overheating the blade or the metal, and they worry about destroying the "temper."

Not so with the austenitic grades of Stainless Steel (like the 300 series). These steels harden when they are worked. If you dawdle when sawing one of these steels, it will harden right ahead of the blade, and you'll swear the saw blade has lost its teeth.

All this talk leads to the simple suggestion: When sawing Stainless Steel, use the recommended speed and cut boldly, without dawdling. It will save time, tempers and saw blades.

Stainless Steel fabrication is not difficult, but it is different. So why not have the last word in fabrication techniques right in your desk? Write on your company letterhead for a copy of our 130-page "Stainless Steel Fabrication Book." Address United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

UNITED STATES STEEL CORPORATION, PITTSBURGH
AMERICAN STEEL & WIRE DIVISION, CLEVELAND
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL SUPPLY DIVISION,
WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS STAINLESS STEEL

SHEETS • STRIP • PLATES • BARS • BILLETS
PIPE • TUBES • WIRE • SPECIAL SECTIONS

UNITED STATES STEEL



A brand new business builder from **BORG-WARNER**

Airline's
consumer-priced
**ELECTROSTATIC
FILTER**



Another example of B-W research and planning for you!

Here it is! The first really new unit to hit the heating and air conditioning field in more than a decade. Brought to you thoroughly proved by the research staff of Borg-Warner.

This long wanted and long awaited product heretofore has been denied thousands of homeowners because of prohibitive costs.

Now the genius of the Borg-Warner research laboratory offers electrostatically filtered air at a price any can afford.

The ready-made market for this unit makes it one to be delivered rather than sold. You can be the first in your community to cash in on the demand.

Want more information? Write Airline Sales Department, 760 Vine Street, Kalamazoo, Michigan.



**See the Complete Airline Heating and Air Conditioning Business Builders
at Booth 658 of the A. S. H. V. E. Show in Chicago**

INGERSOLL CONDITIONED AIR DIVISION **BORG-WARNER CORPORATION**

REMEMBER— Only Airline Offers You . . .

- 1.** Borg-Warner Airline assures you a 15% sales increase in '57.
- 2.** Borg-Warner Airline provides every franchised dealer with all the selling tools needed. We outline on a day-to-day basis how to use them best.
- 3.** Borg-Warner Airline offers you a complete line of priced-right built-right units. There are none better.
- 4.** The Vast Research Facilities of Borg-Warner are constantly applied to keep Airline ahead of the field. 1957 promises the development of many outstanding units.
- 5.** B-W stands for quality in your customers' minds. The Airline sales staff will help you cash in on that prestige.

EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available, see this month's New Literature department

Cooling Units, Furnaces

SIX AIR cooled cooling units and a horizontal furnace for residential applications—*American Standard Air Conditioning Div., Dept. AA, 40 W. 40th St., New York 18*. Model AC-5A air cooled compressor, condenser and pressure control unit is rated at 5 hp. Model C-G-AC gas-fired year



'round unit for use with remote condensing unit is rated at 2 hp cooling with gas-fired heating in capacities of 75,000, 100,000, 125,000 and 150,000 Btuh input. Model C-OB-AC oil-fired year 'round unit for use with outdoor condensing unit is rated at 2 or 3 hp, 85,000 or 112,000 Btuh at bonnet. Model RC-C counterflow evaporator unit is in two sizes. Model RC-B blower-equipped horizontal evaporator is in two sizes. Model RC-H horizontal air flow evaporator is in two sizes. Model GHA horizontal gas-fired furnace is in 85,000, 100,000, 125,000 and 150,000 Btuh sizes.

Stack Controls

TYPES 680 and 682 oil burner primary controls for continuous or intermittent ignition residential oil burners, respectively—*Penn Controls, Inc., Dept. AA, Goshen, Ind.* Single unit controls are for use with low voltage control circuits; relay drops out upon flame failure and when voltage drops. Bimetal element withstands temperatures to 1000 F. Maximum ambient temperature is 150 F. Temperature rise of 40 F is

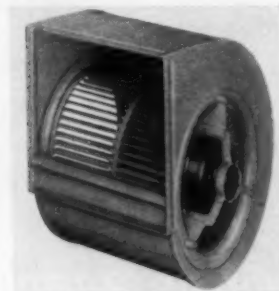
required to move contacts off starting position; stack temperature drop of 100 F is necessary before burner



can be restarted. After 2 or 3 minutes following flame failure, burner attempts to start again; if no combustion occurs, stack switch locks out, requiring manual reset.

Duct Fittings

FITTINGS for duct systems featuring simplified method of connection — *Clayton & Lambert Mfg. Co., Dept. AA, 1701 Dixie Highway, Louisville 10, Ky.* Designed specifically to meet the needs of the remodeling market, the fittings are available in four different sizes and styles.



Neoprene hub was developed to minimize noise transmission into heating or cooling system. Units range in capacity from 1/12 hp to 1/6 hp and from 835 cfm and 710 rpm to 1370 cfm and 900 rpm at 0.10 WG static pressure according to the manufacturer.

Convactor Humidifier

STANDARD CONVECTOR humidifier designed to fit into counterflow or up-flow furnaces and year 'round air



conditioners — *Maid-O'-Mist, Inc., Dept. AA, 3217 N. Pulaski Rd., Chicago 41*. Individual $\frac{3}{8}$ in. copper water troughs spaced 1 in. apart are designed to permit unrestricted air

flow between evaporator pads. Narrow trough design permits installation on either side of counterflow furnaces having a minimum air passage of 3 in. Thirteen sizes are available with evaporation capacities of 1 to 10 gal per day.

Direct Drive Blowers

LINE of direct drive blowers with neoprene hubs—*Utility Fan Corp., Div. of Utility Appliance Corp., Dept. AA, 911 E. 59th St., Los Angeles 1*.

Notcher, Groover

No. 65-5 AIR power notching and punching machine and model 48-U universal power grooving machine—*Niagara Machine & Tool Works, Dept. AA, 637-697 Northland Ave., Buffalo 11, N.Y.* Groover makes single and Pittsburgh lock seams in mild and galvanized steel from 18 to 20 ga. Working length is 48 in. Notcher has $6\frac{1}{2}$ ton capacity, $4\frac{3}{4}$ in. throat. Punching capacity ranges from 5/16 in. through $\frac{1}{4}$ in. mild steel to 2 in. through 16 ga mild steel.

(More equipment news on page 185)

NEW 1957 MODEL ZL *Electro-Klean*

ELECTRONIC HOME AIR FILTER



**The company that pioneered electronic air filters
now breaks the cost barrier for home filters!**

Only the oldest and largest manufacturer of electronic air filters could produce such a tremendous value! *Electro-Klean* is backed by a progressive organization with more than 30 years' experience in air filtration . . . more than 12 years' research in home air filter development . . . more than 5 years of actual sales experience in home air filters. All this, plus a completely new design and volume production make possible an electronic home air filter you can sell at amazingly low cost . . . at full profit!



American Air Filter

COMPANY, INC.

335 CENTRAL AVENUE • LOUISVILLE 8, KY.

Better Air is Our Business!



...simplifies perimeter heating, cooling and combination jobs.

MR. ROCCO J. TALIANO of Rocky's Sheet Metal Shop, Lorain, Ohio, finds the Auer "Perfusaire" perimeter register cuts installation time up to 50%! Jobs go in easy . . . without cutting or fitting. Profits are greater because installation takes less time . . . less labor.

Perfusaire is "ready-to-install"—only 18" long but with the capacity of 4 to 8 ft. units, it has a pre-cut duct opening $2\frac{1}{4} \times 12"$ with convenient knock-outs to accommodate $2\frac{1}{4} \times 14"$ ducts. It installs quickly and easily in or against plastered walls . . . inside or outside the baseboard . . . in new or old construction . . . it is ideal for uneven wall installations—Perfusaire fits snugly against wall surfaces without unsightly gaps . . . eliminates the need for filler strips or molding.

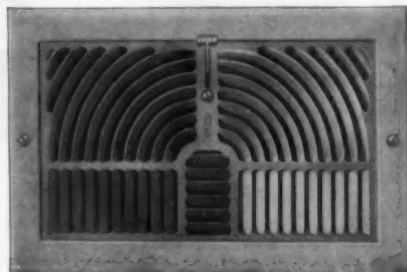
Floor Type

Where floor type perimeter registers are required, or for installation in narrow or "hard-to-reach" spaces such as stair risers, Auer D.P.R. perimeter diffusers are available in standard sizes to meet these requirements.

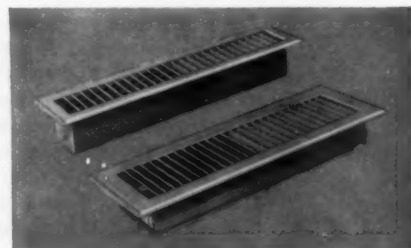
For complete details on "Perfusaire" and other registers and grilles "For Every Heating and Air-Conditioning Need", write to:



Clip Fasteners speed attaching $2\frac{1}{4} \times 12"$ or $2\frac{1}{4} \times 14"$ duct without cutting the diffuser . . . without screwing or bolting.



Auer "Fanaire" for "Perfect Pattern" heating and cooling. Can be used for high or low side-wall installation or as a ceiling outlet.



Auer D.R.P. Floor Register for perimeter floor installations. Available in $2\frac{1}{2} \times 14"$, 4" and 6" widths, 10", 12" and 14" lengths.



THE AUER REGISTER COMPANY

"REGISTERS AND GRILLES FOR EVERY HEATING AND COOLING NEED"
6602 CLEMENT AVENUE • CLEVELAND 5, OHIO

Electronic Air Cleaner

ELECTRONIC AIR cleaner for 110-v alternating current — *Minneapolis-Honeywell Regulator Co., Dept. AA, 2726 Fourth Ave. S., Minneapolis 8.* Dust laden air passes through a 13,000-v ionizer section where parti-



cles receive positive electrical charge. Charged particles are then attracted to 6500-v negatively charged collector plates. Particles smaller than the smallest known virus (about 0.001 microns) can be removed, according to the company. Cleaning is accomplished by automatic washing cycle. Hot water from the domestic hot water system is used to wash the collector plates; drainage is to any convenient floor outlet and to the sewage system.

Highboy Furnace

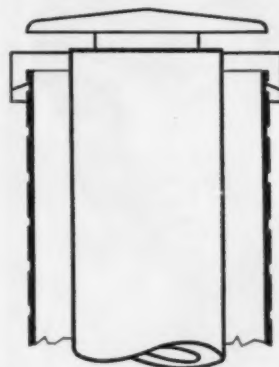
MODEL 315 oil-fired highboy furnace in six sizes ranging from 75,000 to 144,000 Btuh output — *Bryant Mfg. Co., Dept. AA, 2020 Montcalm, Indianapolis.*



Featured are tapered edge on radiator offering easy path for air to scrub heat exchanger; combination fan and limit control factory connected with wiring harness and located with sensitive element between heat exchanger and radiator to prevent overheating of heat exchanger; ceramic combustion chamber. Blowers are rated from 620 to 1215 cfm, according to the manufacturer.

Chimney Housing Cap

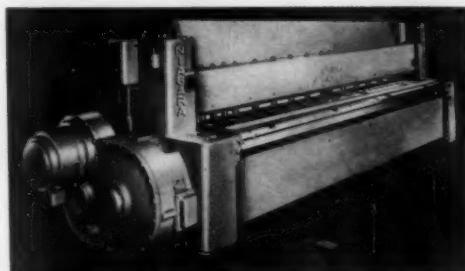
"SNAP-ON" HOUSING cap for use with the company's brick-panel chimney housing — *Van-Packer Corp., Dept. AA, 1049 State St., Bettendorf, Ia.* Feature of



the unit is ease of installation, the company reports. Cap is pressed securely down onto cement-asbestos brick panel housing; no holes or screws are necessary and the unit can be installed in 30 seconds, according to the manufacturer.

Power Squaring Shears

UNDERDRIVE SQUARING shears with hinged back gage angle for long plates; adjustable, parallel micrometer back gage for blanks or strips; and light beam shear-

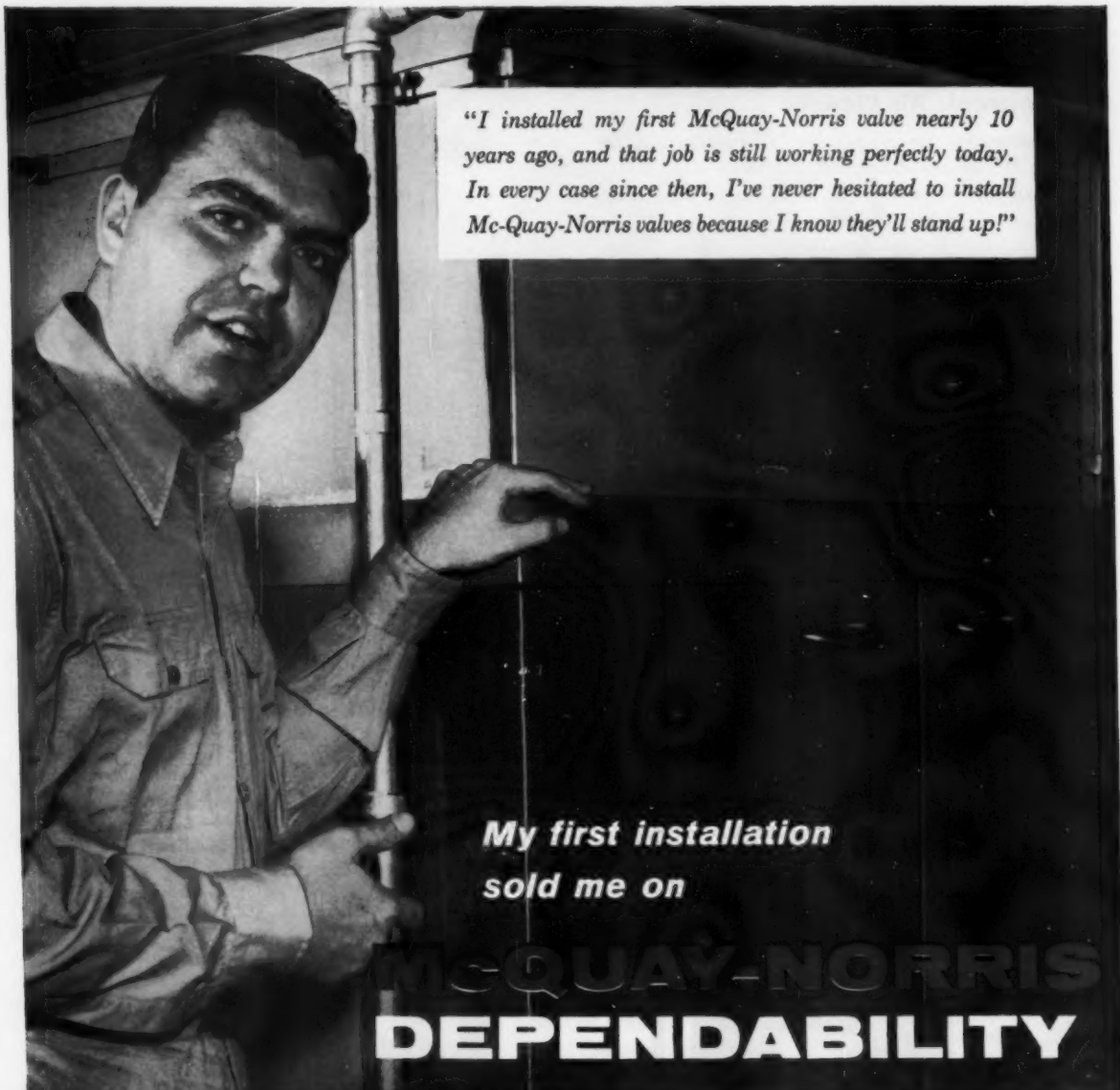


ing gage which is focused to cast shadow line for shearing angular and irregular shapes to scribed lines — *Niagara Machine & Tool Works, Dept. AA, 637-697 Northland, Buffalo 11, N.Y.* Other features are disappearing adjustable stops for feeding sheets without lifting; remote control electric foot switch; stationary safety guard to protect operator; self-compensating holddown; welded steel construction used throughout the unit.

Centrifugal Roof Ventilator

CENTRIFUGAL ROOF ventilators built of 16 ga and heavier steel and featuring modern contours — *Peerless Electric Co., Dept. AA, 1401 W. Market St., Warren, O.* Moving parts are resiliently mounted on angle iron frame. Non-overloading backward curved wheel

(Continued on page 194)



"I installed my first McQuay-Norris valve nearly 10 years ago, and that job is still working perfectly today. In every case since then, I've never hesitated to install McQuay-Norris valves because I know they'll stand up!"

**My first installation
sold me on**

**McQUAY-NORRIS
DEPENDABILITY**

*The famous
McQuay-Norris
spring-loaded
soft-seat
solenoid valve*



Features...

- Time Tested by leading manufacturers
- AGA and UL listed for use with natural, manufactured and liquid petroleum gases
- Soft-seat valve with positive seal
- Fail-safe—spring pressure always closes the valve
- Operates in any position
- Resists corrosion, stands up under extremes of temperature
- Stainless steel working parts, special analysis aluminum die casting in valve body, soft seat of special formula Buna N



McQUAY-NORRIS
Manufacturing Company • St. Louis 10, Mo.

47 YEARS IN THE MANUFACTURE OF PRECISION PRODUCTS



Now, line ducts fast . . . easily with new, semi-rigid Microtex

For fast, easy duct-liner installation . . . plus maximum insulation per dollar, use L·O·F Glass Fibers' economical new Microtex duct liner.

Applied quickly with adhesive and formed in the brake, Microtex requires no special skills, tools or equipment. Semi-rigid yet resilient, Microtex is pleasant to handle—easy to cut and fit into irregular sections.

Lightweight Microtex does an efficient job. Made from fine glass fibers that trap millions of tiny air cells, it ab-

sorbs mechanical noises; insulates warm- and cold-air ducts against heat transfer. Duct itself acts as a vapor barrier. Sprayed facing of black vinyl resists air erosion, even at peak operating velocities.

You can get quick delivery on low-cost Microtex duct liner in densities of $1\frac{1}{2}$, 2, and 3 lb./cu. ft. and in standard widths. For the name of your nearest distributor, write: L·O·F Glass Fibers Company, Dept. 45-27, 1810 Madison Avenue, Toledo 1, Ohio.

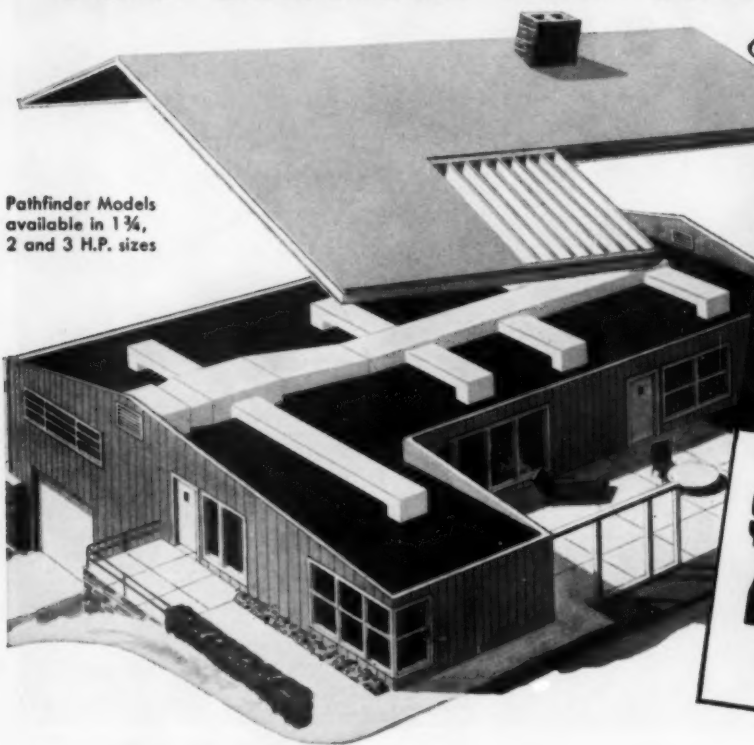


L·O·F GLASS FIBERS COMPANY • TOLEDO 1, OHIO

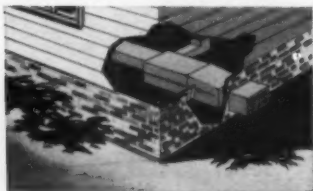
Crash the Low Cost Home Market

FOR CENTRAL AIR CONDITIONING!

Pathfinder Models
available in 1 3/4,
2 and 3 H.P. sizes



FITS TINY SPACE—turns attic into cooling headquarters. Even a dormer installation for hip and low roofs.



INSTALLS ANYWHERE—in breezeway, garage, through wall to basement or crawl space.

...LETS YOU EARN HIGH PROFITS THROUGH VOLUME SALES TO THE MASS MARKET OF \$12,000 TO \$18,000 HOMES!

Retailing for less than \$500, the big York-Pathfinder is a sensational value—with big profit opportunities for you! Air-cooled, the Pathfinder installs almost anywhere—with no costly plumbing, cooling towers or re-circulating pumps required! And, it uses either existing warm air duct systems or the pre-fabricated, pre-insulated York Ductwork that turns days of installation into hours.

But that's only the beginning! To

make selling to this new mass market even easier, York Pathfinder ads will appear in 5 leading national magazines and the Sunday Supplements. Outdoor posters, ad mats, TV and radio spots plus sales literature, selling centers, displays and demonstrators will tie you in at the point-of-sale. And, for the big pay-off, you can win an all-expense vacation to glamorous Varadero Beach, Cuba. Get on the bandwagon. Contact your York Distributor, today!



**Your FUTURE and FORTUNE
Now Lies With York!**

York Corporation, York, Pa., Subsidiary of Borg-Warner

CUT HOURS of WORK to MINUTES ... *More* PROFIT PER JOB

with
NEW



**"PITTSBURGH LOCK"
HAMMER**

HANDLES
30 to 22 Ga.
SHEET
METAL

\$137⁵⁰

CONTRACTORS'
NET PRICE

MODEL
PLH-1



The PERFECT TOOL For Closing "Pittsburgh Locks"

The MILWAUKEE PLH-1 Hammer speeds up and takes the work out of the only tedious, costly, and time consuming job of fabricating duct work closing the "seam." This new MILWAUKEE tool breezes along at speed of 15 feet per minute on commonly used gauges. Actually can save half of a man's time in making ducts, and do a better job.

**Built By The Makers Of The Famous
SAWZALL**



HEAVY-DUTY
Electric HACKSAW

Arrange with your *Milwaukee* TOOL DISTRIBUTOR
For A Convincing Demonstration.

Or Write For Bulletin DE-52

Ends Hand Hammering...

Just a couple of taps at the center and ends of a standard length duct to secure the lock . . . then the MILWAUKEE Pittsburgh Lock Hammer does all the work.

Versatile...

Handles 30 to 22 gauge (no adjustment required). For straight runs, inside or outside radius. . . Use it in the shop or on the job.

Perfect Balance...

Weight rests on the work . . . position of handle affords positive control and balance . . . guides easily along seam.

Powerful...

MILWAUKEE-BUILT 115V AC-DC motor . . . more than enough power for any job.

Rugged... Long Lasting...

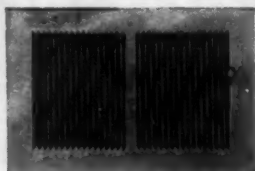
Sturdily built for heavy-duty use. . . Ball and roller bearings throughout.

MILWAUKEE ELECTRIC TOOL CORPORATION

5352 W. STATE STREET

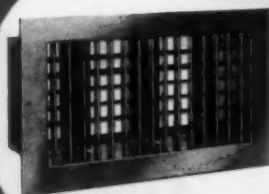
MILWAUKEE 8, WIS.

REGISTERS



2300 — MULTI-LOUVER
SIDEWALL REGISTER

GRILLES



2580 O. B. D.
4-WAY DEFLECTION
WITH OPP. BLADE

DIFFUSERS



2200 ROUND
CEILING DIFFUSER

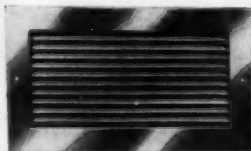
6" to 14" SIZES
BUTTERFLY DAMPER &
INSTALLATION RINGS

KRUEGER

Air Conditioning Corp.

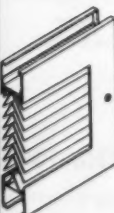
* JOHNSON IN '43 RAY CITED

19 E. RILLITO
TUCSON, ARIZONA
Phone MAIN 2-2805



2400 DOOR GRILLE

NON-VISION

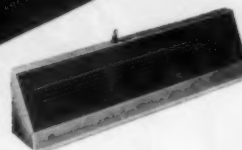


EX-E EXTRACTOR

Successful dealers everywhere are using
Krueger Products. Why don't you try
us now!



2700 — PERIMETER
DIFFUSER



2900 — BASEBOARD
DIFFUSER

YOU'RE REALLY GOING TO SEE SOMETHING AT THE SHOW

It's the biggest profit value in grilles, registers
and diffusers on the market today—the 1957
Krueger Design-Air line.

SEE YOU AT BOOTH 308

International Heating & Air Conditioning Ex-
position in Chicago, February 25 thru
March 1.

NOW OPEN

Our new Factory Warehouse in Chicago
6143 West Belmont Avenue
Chicago 34, Illinois

"SAY, J. P., WHAT'S
THE REAR END OF A
JET GOT TO DO WITH
ARMSTRONG
FURNACES?"

"**CERAMIFLEX**, SAM...
THE GREATEST THING
THAT'S EVER HAPPENED
TO COMBUSTION
CHAMBERS!"*



"Here, let me tell you about it..."

"You know that pipe in back of a jet airplane heats up pretty good, Sam . . . gets up about 2000°, and man, that's hot! Well, the Air Force folks needed something to keep all that metal the plane's made of from meltin' when those big jet engines started revvin' up. So this new refractory stuff was made up, and she really did a job. Then those smart Armstrong engineerin' fellas got wind of it, and by golly, they figured it'd work real fine in combustion chambers of Armstrong oil furnaces. This stuff looks just like a blanket. Replaces refractory brick, Sam . . . lots lighter, won't break, quiets down combustion . . . does so darn many things, and does them so well — why, even those fellas at Underwriters' Laboratories are impressed, and you know what it takes to get them hoppin', Sam! This CERAMIFLEX is so great nobody knows yet what all it'll do! But one thing's sure, Sam — honest to J. P., it's the most advanced thing to hit this heatin' business since . . . well, since fire, I guess! Here, let me show you this CERAMIFLEX stuff, Sam, and all the terrific things it can do . . ."

Just turn the page and see for yourself



ARMSTRONG LEADS THE FURNACE INDUSTRY INTO THE *JET AGE*

WITH THIS MODERN, YEARS-AHEAD OF THE INDUSTRY CERAMIFLEX REFRACTORY*

An amazing new oil furnace refractory blanket that'll sweep the industry right off its feet! CERAMIFLEX is a brand new product, a brand new idea in refractory lining. It's tough, just like the Armstrong combustion chamber it insulates . . . made to the exacting specifications of Air Force jets, it'll outlast anything under the rugged wear a combustion chamber gets. And it's as easy to handle as a bolt of velvet! But that's only part of the story. Take a look at these other great CERAMIFLEX features!



1. **Light as a feather** — "Weights only 5% as much as ceramic firebrick, Sam. Think of that! The whole refractory for an Armstrong oil furnace weighs only as much as your tin snips!" The CERAMIFLEX refractory can be shipped installed in the combustion chamber, with no danger of breakage or added weight. CERAMIFLEX does a real insulating job, too. The same as three times its thickness of refractory fire brick.



2. **High temperature resistant** — "Just fire away with that blow torch, Sam. You'll have a tough time hurtin' this CERAMIFLEX!" Underwriters' Laboratories put CERAMIFLEX to some of the most rigid heat tests imaginable . . . temperatures up to 2000°, continuous exposure and actual flame impingement can be weathered by CERAMIFLEX. And CERAMIFLEX is completely resistant to fuel oil, moisture, sulphuric acid, and all products of combustion.



3. **Rugged** — "It's really made to last" — "By golly, J. P., nothing hurts this CERAMIFLEX!" "That's right, Sam. Underwriters' Laboratories proved that, too." CERAMIFLEX won't expand or contract on heating and cooling. This means it can't warp out of shape, won't crumble, sag or slump. Once CERAMIFLEX is in place — there it stays! Its long life and high combustion efficiency will really amaze you.



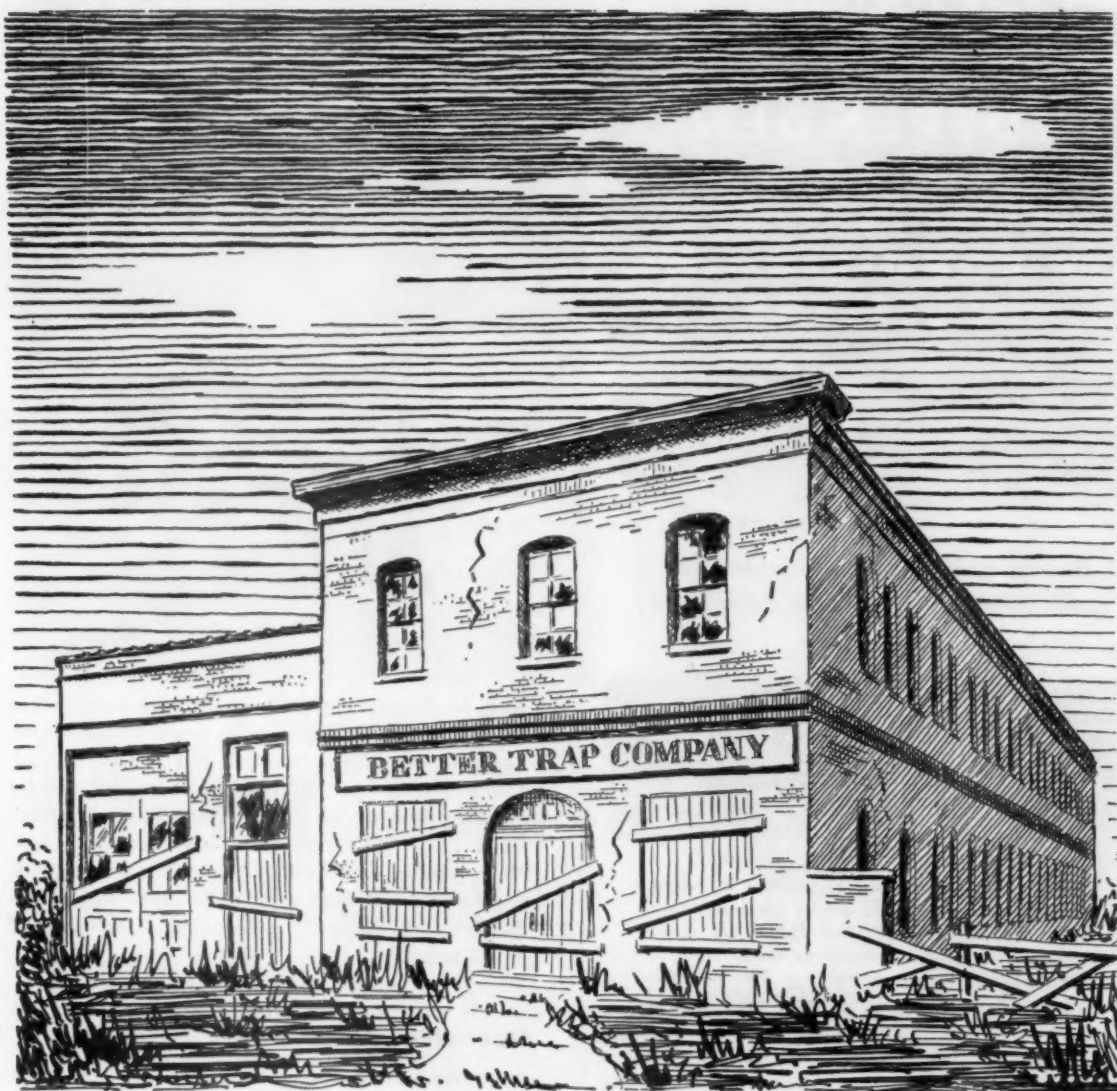
4. **Terrific sound absorption qualities** — "Can't hear a thing, can you, Sam? Armstrong oil furnaces are the quietest made anyway, and CERAMIFLEX makes them downright silent!" Thousands of tiny air spaces swallow up any slight combustion sound that might occur in operation, making Armstrong oil furnaces the quietest ever developed.

And all of these wonderful "jet-age" qualities go into Armstrong oil furnaces in the form of CERAMIFLEX, the amazing new refractory that's lightweight, unbreakable, high-temperature resistant, rugged, flexible . . . well, just about everything except costly! CERAMIFLEX was developed specifically for Armstrong's new 1957 oil furnaces. Contact your Armstrong wholesaler right now! Have him give you the full story of Armstrong's new oil furnace line with CERAMIFLEX, the refractory that's going to revolutionize the furnace industry. Don't wait! Do it now! This CERAMIFLEX is way ahead of the industry.

*Patent Pending

ARMSTRONG FURNACE COMPANY

DIVISION OF NATIONAL UNION ELECTRIC CORPORATION
COLUMBUS 8, OHIO



MOUSETRAP, STEAM TRAP, SEWER TRAP

...it makes no difference

. . . the world *won't* beat a path to the door of the man who builds a better one *and then doesn't advertise it* so that people will know about his product, know where it can be bought and how much it costs.

Advertising benefits the buyer, too. It tells you the product story, makes it easy for you to buy. Even more important to you, advertising leads

to mass production and volume sales . . . which means lower costs and lower prices.

Yes, "Advertising Benefits You" . . . 'specially business-paper advertising.



You can get
DIRECTED AIR FLOW
at any angle with

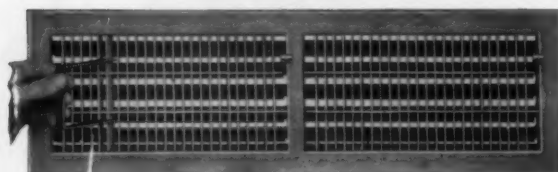
INDEPENDENT
"Fabrikated"
**AIR CONDITIONING
REGISTERS**



321-A HMV

Rear View Showing "HMV" Valves

**Every grille bar adjustable
individually—before or after
installation**



321-A HMV Tandem

Any direction of air flow—right, left, up, down and any combination—is easily obtained with "Fabrikated" Style No. 321-A HMV air conditioning registers, for residence or commercial installations, on sidewalls or ceiling. The face bars are adjustable to right or left; valves on the back are adjustable to direct the air flow up or down; valves may also be fully closed, and are connected to open or close in unison.

The angles of deflection and the combinations to be had are practically unlimited. Adjustments for directed air flow may be made before or after installation. Grille bars are held firmly in place and will not vibrate or rattle. "Fabrikated" registers are available in sizes from 8 x 4" to 48 x 24", including tandem style. Special sizes can be made without special die set-up charges.

Write for Catalog No. 56.
VISIT US AT INTERNATIONAL HEATING AND
AIR CONDITIONING EXPOSITION — BOOTH
NO. 437



**THE INDEPENDENT
REGISTER CO.**

3747 E. 93rd STREET • CLEVELAND, OHIO

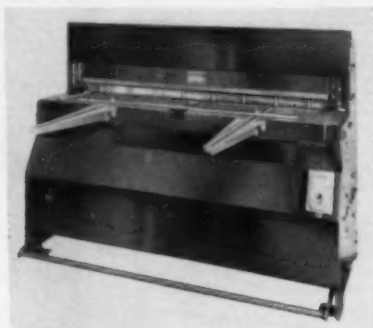
equipment developments

(Continued)

is taper-locked to shaft. Hoods are heavy gage tilt type, anchored to frame. Belt drive provides several cfm selections. Shaft is supported by ball bearing pillow blocks. Knockout holes are provided for internal wiring. Unit has welded base with curb overlap.

Squaring Shears

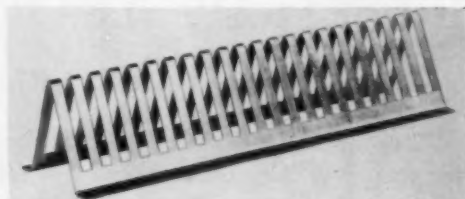
No. 72 SERIES power squaring shears in 3 to 6 ft sizes to handle mild steel sheets up to 12 ga — *Whitney Metal Tool Co., Dept. AA, 99 Forbes St., Rock-*



ford, Ill. Regular spring hold-downs are assisted by 3 adjustable "master" springs to assure positive grip. Gages are provided at front and rear. Rapid crank adjustments and set-in calibrated scales are designed for quick positioning of gages. Blades have 4 cutting edges. Blade can be turned over when one edge is dull. Blade guards have clear plastic panels and optional fluorescent light. Both main drive shafts are in self-aligning ball bearings. Units have width capacities of 36, 52 and 72 in.

Humidifier Racks

STAINLESS STEEL racks which are now standard equipment on all the company's automatic humidifiers —



Skuttle Mfg. Co., Dept. AA, Milford, Mich. Stainless steel was chosen to increase resistance of the humidifiers to damage caused by corrosion and rust and to facilitate cleaning and maintenance, the manufacturer reports. Stainless steel is also now used for other components including siphon foot clip on self flushing model 600 as well as on plate-rack clip for model 450 and alignment clip on all units.

2 GREAT NAMES

JOHN WOOD
-fluid heat-

2 GREAT PRODUCTS



**Combine to create
new profit potentials
for you!**

The merger of these two great names provides one source, one line, for all of your water heater and heating needs.

You can increase your sales and profits by joining the John Wood family of dealers and representing one of the broadest lines in the heating industry to meet practically every heat-

ing and water heating requirement.

ASK YOUR JOHN WOOD REPRESENTATIVE OR DISTRIBUTOR about the new big John Wood promotions that will increase your heating sales when you feature the John Wood Water Heater and Fluid Heat space heating lines. Get full details, now!



JOHN WOOD COMPANY

Heater and Tank Division

Conshohocken, Penna. Chicago, Ill. Red Oak, Iowa

LAST YEAR

Skimpwell Air Conditioning Co. was always on the receiving end . . .



THIS YEAR

Skimpwell switched to **ULTRALITE** glass fiber duct liner . . .



ULTRALITE DUCT LINER (an acoustical insulation specifically designed for lining ducts) is generally recognized as the best duct liner available because it is stronger than others, costs less to apply, and provides top acoustical — and thermal — efficiency. It was the first product of its kind on the market and is the only such product with a 12-year record of completely satisfactory performance. For the same reasons of economy and proven performance, you'll want to wrap ducts with ULTRALITE Duct Insulation, a thermal insulation for the exterior. For information and prompt delivery —

CALL YOUR ULTRALITE DISTRIBUTOR LISTED IN ADJOINING COLUMN

GUSTIN-BACON Manufacturing Company 

Thermal and acoustical insulations • Molded glass fiber pipe insulation • Pipe couplings and fittings

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then call your local
ULTRALITE distributor
listed below



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AMARILLO, Ball Distributing & Engr. Co.
APPLETON, J. D. Wilson Co.
ATLANTA, Ga., Southern States Iron Roofing Co.
BILLINGS, Mont., Big Horn Supply, Inc.
BIRMINGHAM, Ala., Shook & Fletcher Supply
Southern States Iron Roofing Co.
BROOKLINE, Mass., Homans-Kohler, Inc.
BUFFALO, Frontier Insulation & Supply Co.
CHARLESTON, W. Va., Baldwin Asbestos Products Co.
CHARLESTON HEIGHTS, S. C., Stafford Insulation Co.
CHICAGO, E. C. Carlson Co.
CINCINNATI, R. E. Kramig & Co.
CLEVELAND, The Miles Materials Co.
COLUMBIA, S. C., Southern States Iron Roofing Co.
COLUMBUS, Santeler Brothers
DALLAS, Insulation Supply Co., Inc.
Payne-Ladewig, Inc.
DAVENPORT, Republic Electric Co.
DENVER, Gene Wright Lumber Co.
DETROIT, Coon-DeVissers Co.
EL PASO, Insulation & Specialties Co.
FARGO, N. D., Smith, Inc.
FT. SMITH, Ark., Gunn Distributing Co.
FT. WAYNE, Ind., M. H. Hill, Inc.
FT. WORTH, The Barton Co.
GREENSBORO, N. C., Starr Davis Co., Inc.
GULFPORT, Miss., Paine Supply Co.
HOUSTON, Precision Insulation Co.
INDIANAPOLIS, Central Supply Co.
IRON MOUNTAIN, Mich., Champion, Inc.
JACKSON, Miss., Paine Refrigeration Supply Co.
JACKSONVILLE, Fla., Ferber Sheet Metal Works, Inc.
JOPLIN, Mo., Joplin Cement Co.
KANSAS CITY, Kelley Asbestos Co.
LITTLE ROCK, Gunn Distributing Co.
LOS ANGELES, Western Fibrous Glass Products
Thorpe Insulation Co.
LOUISVILLE, General Insulation & Roofing Co.
MADISON, Wis., J. D. Wilson Co.
MEMPHIS, John A. Denie's Sons Co.
MIAMI, Southern States Iron Roofing Co.
MILWAUKEE, J. D. Wilson Co.
MINNEAPOLIS, Asbestos Products, Inc.
MOBILE, Ala., Shook & Fletcher
NASHVILLE, Southern States Iron Roofing Co.
NEWARK, N. J., Eastern Steam Specialty Co.
NEW HAVEN, Conn., Insulation Supply Co.
NEW ORLEANS, Eagle Asbestos & Packing
NEW YORK, Eastern Steam Specialty Co.
OKLAHOMA CITY, Ball Distributing & Engineering Co.
OMAHA, Cardinal Supply & Mfg. Co.
PHILADELPHIA, John F. Scanlan, Inc.
PITTSBURGH, Dravo Corp.
PHOENIX, Ariz., Kircher Asbestos & Rubber Co.
RALEIGH, N. C., Southern States Iron Roofing Co.
RICHMOND, Va., Southern States Iron Roofing Co.
ROCKFORD, Ill., Mott Brothers Co.
SALT LAKE CITY, Bullough Asbestos Supply Co.
SAN ANTONIO, The Bracken Co.
SAN DIEGO, Western Fibrous Glass Products
SAN FRANCISCO, Western Fibrous Glass Products
SAVANNAH, Ga., Southern States Iron Roofing
SEATTLE, Western Fibrous Glass Products
ST. LOUIS, A. G. Brauer Supply Co.
ST. PAUL, Asbestos Products, Inc.
SYRACUSE, N. Y., Industrial Supply Co.
TAMPA, Fla., Eagle Roofing & Art Metal Works, Inc.
TALLAHASSEE, Fla., Capital Refrigeration & Supply
TULSA, Okla., Ball Distributing & Engr. Co.
TUPELO, Miss., Paine Supply Co.
WASHINGTON, Walter E. Campbell Co., Inc.
WICHITA, General Metals, Inc.
VANCOUVER, B. C., Fleck Brothers Limited

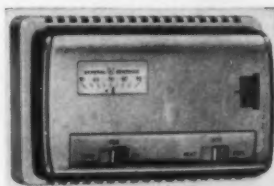


equipment developments

(Continued)

Controls

TWO CONTROLS, a thermostat and a gas flame control — *General Controls Co., Dept. AA, 801 Allen Ave., Glendale 1, Calif.* The thermostat features horizontal installation of



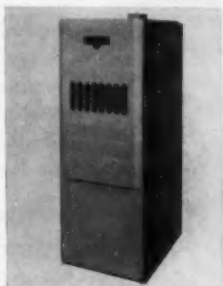
switches for heating and cooling applications. The gas flame relay has been designed to utilize magnetic amplification of the electrical current developed by the thermocouple.

Self-Drilling Shells

"REDHEAD" self-drilling expansion shells for concrete, brick or stone — *Phillips Drill Co., Dept. AA, U. S. 12 - Liberty Trail, Michigan City, Ind.* Designed to be driven with either hand or impact hammers, the shell will not pull or shake out, according to the manufacturer.

Gas-Fired Furnaces

GAS-FIRED HIGHBOY furnaces in five capacities ranging from 80,000 to 150,000 Btu/h output — *Armstrong Furnace Co., Div. of National Union*



Electric Corp., Dept. AA, 851 W. Third Ave., Columbus 8, O. Blowers are available in either direct drive or belt driven models. Standard controls are used and are prewired and piped in sequence to the burner for convenience at time of installation.

Vitroliner Leads Again!



FOR ALL FUELS!

VITROLINER offers Architects, Project Builders and Building Contractors MORE FLEXIBILITY, CHOICE, SELECTION, QUALITY and MORE SPECIAL FEATURES than any "prefab" on today's market.

VITROLINER offers MORE TYPES of Chimneys—Type "E" and "L", for ceiling or basement installation. It offers MORE FLUE SIZES for the one CORRECT size, the heating plant requires. There is also MORE permanent basic engineering—and MORE QUALITY MATERIAL, time-tested, tried and proven successful, for over fifteen years.

The Chimney is MORE COMPLETE—Tailor-made to fit the individual job—no cutting or fitting—packaged and shipped direct from the factory. The "KD" Knocked-Down complete Housing Package is MORE quickly shipped from nearby Vitroliner Distributors and Dealers.

VITROLINER IS PREFERRED BECAUSE OF THESE SPECIAL FEATURES

- LOWEST INSTALLATION TIME.
- SAVES FLOOR SPACE IN UTILITY ROOM.
- LIGHTWEIGHT—10-15 LBS. PER FT.
- TAILOR-MADE FLUE HOUSING AND ROOF FLASHING.
- CHOICE OF FLUE DIAMETERS—6", 7", 8", 10" AND 12".
- PROVIDES ATTIC VENTILATION.
- LISTED BY UNDERWRITERS LABORATORIES FOR ALL FUELS. APPROVED BY BUILDING AUTHORITIES. EXCEEDS F.H.A. AND V.A. MINIMUM CONSTRUCTION REQUIREMENTS.

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Every Type
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Feature and Sell the New
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with the Revolutionary New
and Unbreakable Glass Fiber . . .



EVAPORATOR PLATES

Absolutely unbreakable . . . pick up
water faster . . . evaporate more
water . . . rustproof drain clips
prevent drip.

Advanced Design

New Cut-Out Template Reduces Installation Time by
Half • Inspection Plate Slips on and off without
Tools • 50% More Humidifying Capacity • No
Moving Parts • Nothing to Stick, Clog or
Require Frequent Service.

AUTO-FLO CORPORATION
12085 Dixie Street, Detroit, 39 Michigan

Please send me full information on:

- ☐ Auto-Flo Fuel Oil Filter
☐ Auto-Flo Automatic Humidifier

Name

Address

City Zone State



equipment developments

(Continued)

Duct Section Fasteners

ONE-STEP FASTENING process for warm or exhaust air
duct systems — *Metalace & Stitch, Inc., Dept. AA,*
255 Fifth Ave., New York. Product "buttons" two



pieces of metal together without use of bolts, rivets,
solder, staples, wire or other materials. Dissimilar
metals and dissimilar thicknesses (10 to 30 ga) can
be joined in this manner.

Pneumatic Portable Nibbler

PORTABLE METAL cutting nibbler said to cut up to 55
in. per min. through 10 ga stainless steel without dis-
tortion — *Fenway Machine Sales Co., Inc., Dept. AA,*
263 W. 23rd St., Philadelphia 3. Short turning radius
allows for intricate patterns and special openings
without special devices. Air-powered unit is made of



cast aluminum, weighs 13 lb and is 13 in. long. Ro-
tating parts have anti-friction bearings. Unit operates
on heavy duty motor and 30 cfm, 90 psi per min., 5
hp, 2 stage compressor. Capacity is 10 ga stainless,
nicked CR steel and galvanized iron, 8 ga mild steel,
aluminum, brass and other softer metals.

Time Switch

MODEL 1963 three pole time switch for controlling
three phase power — *Tork Clock Co., Inc., Dept. AA,*
1 Grove St., Mt. Vernon, N.Y. Four dial styles pro-
vide skip-a-day service, service to conform with sun's
schedule and entire week's varied schedule. Unit can
switch three separate 120-v circuits leading from sub-
panel. Unit can also control a 1½ hp, three phase
motor directly.

THE *Most Profitable* LINE
BECAUSE

THE *Most Complete* LINE
OF HEATING AND COOLING EQUIPMENT

Dealers' and territorial distributors' interest solicited

STEWART-WARNER *Winkler*

FOR OIL



FOR GAS



FOR YEAR 'ROUND AIR CONDITIONING



You're really in business when you handle the Stewart-Warner-Winkler line! You have available everything a home builder or modernizer could possibly demand for a completely modern heating and cooling system. No lost sales because of a "short" line.

This is *quality* equipment—every unit distinguished by advanced engineering which translates into better performance, longer life and trouble-free performance.

So why shop around...why get involved with numerous sources of supply. Concentration on Stewart-Warner-Winkler protects you with one manufacturer's undivided responsibility...saves your time, hence increases your selling opportunities.

FREE TRAINING FOR STEWART-WARNER DEALERS

As a dealer, you and your employees are entitled to receive an intensive course of instruction at the Stewart-Warner-Winkler Training Institute. You'll leave this school fully qualified to sell and install today's most complete line of heating and cooling equipment.



Stewart-Warner
Winkler
representatives
cover the nation



Write, wire or call today for complete information

STEWART-WARNER CORPORATION

HEATING AND AIR CONDITIONING DIVISION • Dept. A-27, Lebanon, Ind.

THE MOST QUIET FURNACE MONEY CAN BUY



Zeph-Air

**IS UNCONDITIONALLY
GUARANTEED . . . FOR LIFE!**

ZEPH-AIR, the gas furnace with the cast-iron heart, is quieter than a whisper — and that is the MOST quiet furnace money can buy. This . . . plus our unconditional LIFE TIME GUARANTEE . . . will more than interest your prospect. It'll help him decide to buy . . . from you. Write today for additional information about our protected territory arrangements and our service. No obligation, of course.

Be sure to see us at Booth 628 at the
Heating, Air-Conditioning Exposition

XXTH CENTURY
HEATING & VENTILATING CO.

Since 1894

96 IRA AVE.

AKRON, OHIO

equipment developments

(Continued)

Blower Bearings with Built-in Journals

SERIES B cushioned blower bearings with built-in, hollow, precision-ground shafts or journals with up to 0.006 in. clearance, designed to increase bearing sur-



face up to one-third — *Viking Air Products Div., National-U.S. Radiator Corp., Dept. AA, 5601 Walworth Ave., Cleveland 2.* Increased surface is said to reduce loads per sq in., adding to bearing life. Cushions are flexible neoprene receptacles which contain oil reservoir. Bearing adapts to hold three shaft sizes: 1 in., $\frac{3}{4}$ in. and $\frac{5}{8}$ in.

Tap-In Seamer

LIGHTWEIGHT SEAMER for installing small and medium sized tap-ins, designed for tighter joints which are smoother on the inside — *Lovinggood Tool Co., Dept. AA, P.O. Box 4741, Charleston Heights, S. C.*

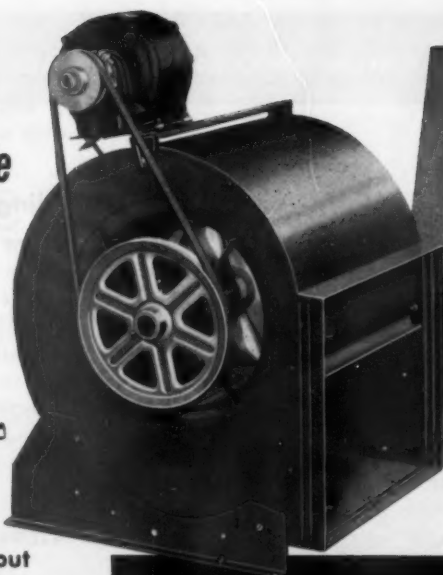


Bending head reaches into tap-in and closes seam tight when handles are operated. Unit installs standard rectangular or round "S" and drive or pocketlock tap-ins $6\frac{1}{2}$ in. long or less, of 24 ga or lighter galvanized iron. Worker's hands are safe—tool is inserted into work with one hand while other is free to hold the work, the company states. Aluminum alloy unit is $14\frac{1}{2}$ in. long, with a throat length of 7 in. and depth of 1 in. It weighs $1\frac{1}{2}$ lb. Bending head is manganese bronze; four bearings are pressed in steel bushings.

Ladder Leveler

LADDER leveling safety leg to adapt straight or extension ladders for use on uneven ground or surface — *Rolas Products Corp., Dept. AA, 156 Avon Ave., Newark 8, N. J.* Leg can be used on any metal or wooden ladder. Dielectric covering on the swivel leg serves as a non-conductor of electrical currents. Leg is made of heavy duty steel, extends automatically.

Introducing The First Truly Interchangeable Furnace Blower



New "B" Series Blower

by
Viking

Interchangeable Without A.G.A. or U.L. Testing

Accepted by American Gas Association and Underwriters Laboratory for substitution immediately without testing.

Interchangeable in dimensions and performance with competitive blowers of a comparable series now purchased or assembled by furnace or air conditioning manufacturers.

Eliminates initial testing of new models for alternate blowers.

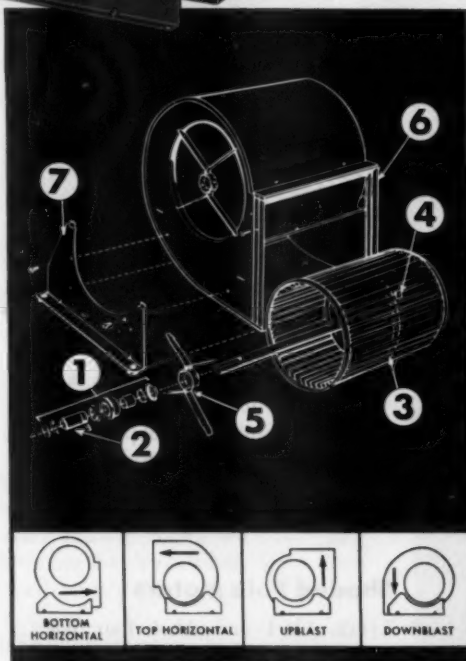
Eliminates re-testing existing models for substitution as alternate blowers.

Saves redesigning cost.

Reduces parts inventory with interchangeable belts and pulleys.

Reduces blower inventory with four discharge positions in single Universal type.

Shortens ordering lead time with perpetual stock for regular customers.



These exclusive features mean quiet, trouble-free, long-wearing blowers.

1. Mark III "Cushion" Bearing . . . neoprene absorbs vibration.

2. "Built-in" Bearing Journal . . . lighter loading increases bearing life.

3. Strong Non-Flexing Wheel . . . blade ends double lock-seamed, blade tabs "sandwich" welded between discs.

4. Vikinetic Balanced Wheel . . . 10 grain weights for finest wheel balancing.

5. Four-Point Bearing Bracket . . . four point weld for greater strength.

6. Reinforced Housing . . . squared, double-ribbed outlet increases rattle-free strength.

7. Lock-On Feet . . . Four standard discharge arrangements with one blower. Lowest installed cost.

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MANUFACTURER

Thatcher Furnace Co.	915
International Heater Co.	28
Conco Engineering Works	1214
Niagara Furnace Division of The Forest City Foundries Co.	1042-1044
Armstrong Furnace Co.	302-401-402
Norman Products Co.	N231-N233
XXth Century Heating & Ventilating Co.	628
Hall-Neal Furnace Co.	1049
Morrison Steel Products, Inc.	610-614
Drayer-Hanson	811

BOOTH NO.

MANUFACTURER

A. O. Smith Corp., Permaglass Div.	1108
Thermo Products, Inc.	N324
Loneragan Mfg. Div.	N317
Jackson-Church Co.	846-850
Illinois Iron and Bolt Co.	207
Curtis Manufacturing Co.	748-750-849-851
J. V. Patten Co.	845
The Heil Co.	1117-1121-1125
Synchromatic Corp.	343
Jahn Wood Heater & Tank Div.	N206
Southwest Manufacturing Co.	226-228

BOOTH NO.

and at the Viking Air Products Booth No. 549

For complete details write
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Viking AIR PRODUCTS

Division of The National-U.S. Radiator Corporation, 5601 Walworth Ave., Cleveland 2, Ohio

equipment developments

(Continued)

Heating-Cooling Lines

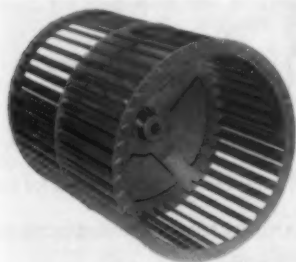
LINE OF air cooled central cooling units and "Deluxe" line of oil- or gas-fired warm air furnaces—*J. V. Patten Co., Dept. AA, 550 DeKalb*



Ave., Sycamore, Ill. Self-contained, suspended cooling units, designed for attic or basement wall installation, are in 17,000, 22,000, and 38,000 Btuh sizes. Gas- and oil-fired furnaces feature streamlined front enclosures.

Blower Wheels

BLOWER WHEELS featuring single center disc—*Revcor, Inc., Dept. AA, 251 Edwards St., Carpentersville,*



Ill. Other features include light weight and low cost. The new double inlet models are precision balanced, the manufacturer states.

Oil Burner

"SUPRA FLAME" oil burner with integral burner-mounted safety control and air diffusion controller—*Hart Heat Div., Avery Farm Machinery Co., Dept. AA, Foot of Leland St.,*

Peoria 2, Ill. Unit is designed for efficient firing of small capacity fires (.75 to 1.65 gph) in spite of low



draft conditions and barrier effect on secondary air stream caused by heat sensing element at mouth of burner tubes. Burner is also designed to provide flame stability while flame burns normally.

Baseboard Diffuser

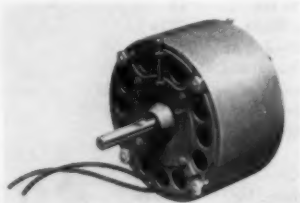
SERIES 72 extended baseboard diffuser with automatic pushbutton damper—*Lima Register Co., Dept. AA, 1790 N. Cable Rd., Lima, O.*



Designed with increased free area (26.6 sq in. for each 2 ft length), unit has pushbutton damper which controls volume at diffuser face. Units are in $24\frac{3}{4} \times 5 \times 2\frac{3}{4}$ in. and $48 \times 5 \times 2\frac{3}{4}$ in. sizes.

Shaded Pole Motors

TYPES AM-4 and AL-4 four pole shaded pole motors rated at 1550 rpm—*Redmond Co., Inc., Dept. AA, Monroe St., Owosso, Mich.* Featured



are die cast magnesium stator core frame; concentric stator core registers; phenolic end fiber and wire guide; forced recirculation of oil;

die cast aluminum rotor. A third flux path has been added at leading pole tip to increase starting and running torques. Type AM-4 is single bearing unit for all angle operation.

Cooling Towers

"SUMMER SHOWER" cooling towers with light weight aluminum construction—*Silvercraft, Inc., Dept. AA, 130 S. Floyd St., Louisville 1, Ky.* New coatings and conveniently located connections are featured, according to the manufacturer. Motor, fan blade and guard are in a single power unit.

Electrostatic Filter

MODEL J-C "Dust-Magnet" electrostatic air filter designed for replace-



ment of conventional filters in $\frac{1}{2}$ in. frames used in cooling units—*Stoddard Industries, Inc., Dept. AA, 1545 Kingsbury St., Chicago 22.* "Lifetime" unit is built over a rust-proof wire frame, bound in flexible plastic and strengthened with brass plated metal corners. Virtually any size can be made to order.

Vibration Mountings

TYPE R neoprene-in-shear vibration mountings in three sizes with load



range of 10 to 1250 lb per mounting—*Vibration Mountings, Inc., Dept. AA, 98-25 Fiftieth Ave., Corona 68, N.Y.* Each size is molded in four hardnesses with each grade in different color to aid in selection and installation. Type SFHM vibration

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Wing Nuts and Thumb Screws

equipment developments

(Continued)

mounting for cooling equipment foundations utilizes reinforcing rods of the foundation, making mounting an integral part of the concrete block. Load range is 400 to 16,000 lb.

Flexible Duct

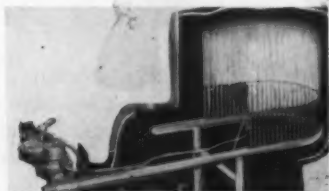
FLEXIBLE DUCT designed as runouts for high and low pressure air conditioning systems—*Flexible Tubing Corp., Dept. AA, Guilford, Conn.* "Thermaflex" continuous spring wire helix with 3-ply laminate of woven glass fiber impregnated with resinous



compound between twin thin non-corrosive metallic sheets, is designed especially for connections between main ducts and between sound boxes and diffusers. Duct is permanently bonded to form continuous cover. Also available are "Flex-Vent" kits for outdoor venting of automatic clothes dryers.

Gas Conversion Burner

"SUPER-JET" conversion gas burner designed to fit any gravity or forced air furnace—*Downing Steel Prod-*

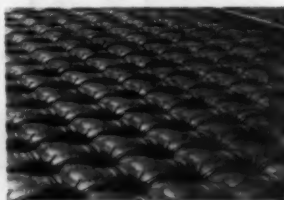


ucts Co., Dept. AA, 2305 S. Smithville Rd., Dayton 10, O. Unit is in two sizes to cover ranges from 70,000 to 110,000 Btuh and from 70,000 to 150,000 Btuh input for natural gas. Burner orifice can be changed rapidly; controls are auto-

matic and self-generating. Unit generates its own current for automatic operation. Overall length is 38½ in.

Panel Heating Formwork

METAL FORM for warm air panel heating systems—*Airfloor Co. of Calif., Inc., Dept. AA, 13729 E.*



Rosecrans Ave., Norwalk, Calif. Panels are formed to provide inter-connecting air paths through concrete slab floors. Shape and fabrication of each panel contributes to rigid support to stand the weight and other stresses encountered during the floor pouring process.

Fans, Ventilators

LINE OF fans, blowers, unit heaters and roof ventilators for residential and commercial application—*Ilg*



Electric Ventilating Co., Dept. AA, 2850 N. Pulaski Rd., Chicago 41. Typical of line are centrifugal blowers with backward curved aluminum airfoil blades, direct-connected or belt drive. Maximum tip speed is 13,500 fpm. Type LSQ power roof ventilator has vertical type Q propeller fan and split capacitor motor, both direct connected. Shutters are gravity and motor operated, designed to prevent back draft.

Evaporative Humidifier

"HUMID-I-MAKER" evaporative humidifier assembly with heated tank

and a separate blower used to provide moisture for room air—*Armstrong Machine Works, Dept. AA, 874 Maple St., Three Rivers, Mich.* Heat for the evaporating tank is obtained from domestic hot water supply. Output capacities range from 6 lb at 120 F to 19.8 lb at 180 F. Installation is possible for basement, living room or utility room location, according to the manufacturer.

Cooling System Cleaner

"ULTRA SOLVEX" cleaning solution for water cooled systems—*Chemical Solvent Co., Inc., Dept. AA, P.O. Box 487, Birmingham, Ala.* Granular



cleaner, for cleaning fouled and scaled surfaces in the system, is available in 10, 25, 50 and 100 lb cans, the company states.

Transformer Line

BUCK AND BOOST transformers designed to increase or decrease voltages from circuits, and line of replacement ignition transformers for oil burners—*Dongan Electric Mfg. Co., Dept. AA, 2987 Franklin St., Detroit 7.* Buck and boost transformers are engineered to increase or reduce voltages 5, 10 or 20 percent. Ten basic ignition transformers and 23 interchangeable mounting plates are said to service more than 2000 different oil burner models.

Tax Calculator

SLIDE CALCULATOR for determining the amount of employee withholding and F.I.C.A. tax to be reported—*Paul S. Morton Engineering Service, Dept. AA, 609 Bangor Road, Lawrence, Mich.* The calculator is 4½ × 11 in. and uses a slide arrangement to set the employee's exemptions to obtain the amount of tax to

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equipment developments

(Continued)

be applied to weekly income. Also available is another calculator of the same type but evaluated for semi-monthly payrolls.

Heat Pump

"COMFORTAIRE" heat pump in 3 to 15 hp models, air cooled condensers and air handling units—*American Coils Co., Dept. AA, 360 Thomas St., Newark, N.J.* Water-to-air heat pump,



for residential and commercial applications, is said to produce full rated capacity no matter what the outside temperature if 50 to 70 F water is available. Air cooled condensers are in 3, 5 and 7½ hp sizes; air handling units are in 3 to 15 hp range.

Electric Unit Ventilators

"CHROMALOX" electric unit ventilators for schools, offices, etc.—*Edwin L. Wiegand Co., Dept. AA, 7500*



Thomas Blvd., Pittsburgh 8. Four models are rated at from 500 cfm and 2700 to 24,600 Btuh to 1250 cfm and 6800 to 61,500 Btuh under specified conditions. Smallest unit has two fans; largest has 5. During morning warmup hours, damper is

closed to outdoor air and room air is recirculated through fully energized heating elements. As warmup continues, heating elements are discontinued one by one and outdoor air is gradually admitted.

Equipment Dolly

HEAVY DUTY ½ ton capacity equipment dolly designed for handling furnaces, large water heaters, etc.—



Yeats Appliance Dolly Sales Co., Dept. AA, 2124 N. 12th St., Milwaukee 5. Featured are aluminum alloy frame, caterpillar step glides, strap ratchet. Two straps and ratchets and four wheels permit rolling heavy equipment horizontally rather than balanced vertically, the company states.

Air Cleaners

LINE OF electronic air cleaners ranging in capacities from 1000 cfm to



9600 cfm—*Trion, Inc., Dept. AA, 1000 Island Ave., McKees, Rocks, Pa.* Standard packaged air cleaners are designed for use with any size residential furnace or cooling unit. Line includes several vertical air flow models, according to the manufacturer.

Lowboy Furnace

SERIES OF four lowboy furnaces in two oil-fired and two gas-fired models—*Conco Engineering Works, Heating & Air Conditioning Div., Dept.*



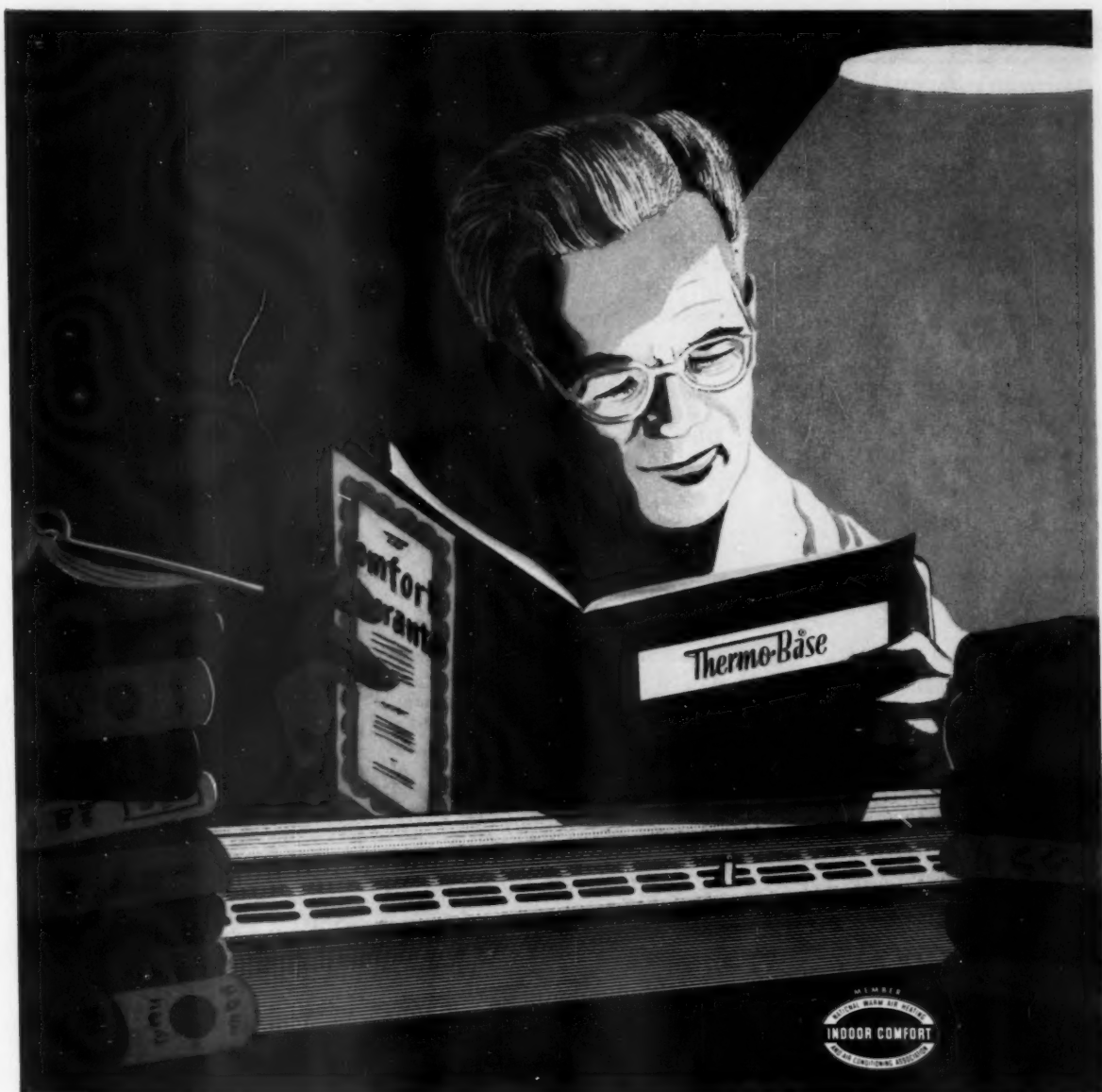
AA, Mendota, Ill. Two gas-fired units are rated at 100,000 and 130,000 Btu; two oil-fired models are rated at 110,000 and 140,000 Btu. Two-piece cabinet design permits installation in tight areas; blower package and heat exchanger package lock together. Units are insulated by foil faced glass fiber lining. Larger blowers are available for add-on cooling or extended duct systems.

Aluminized Steel

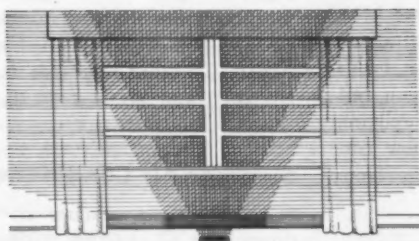
TYPE 1 ALUMINIZED steel for use in heating elements for gas-fired forced air and gravity furnaces and recessed heaters, unit heaters and duct furnaces—*Armco Steel Corp., 703 Curtis St., Dept. AA, Middletown, O.* Product is said to be AGA and ASA approved for temperature up to 1030 F plus room temperature.

Range Hoods, Fans

TWO MODELS of kitchen range hoods and line of ventilating fans—*Chelsea Fan & Blower Co., Inc., Dept. AA, 639 South Ave., Plainfield, N.J.* Standard and deluxe model range hoods are in coppertone and stainless steel finishes, four basic sizes and two different model and finish combinations. Featured are pushbutton controls at eye level to regulate blower speed and operate built-in light. Dual top knockout plates permit installation of ceiling fan. Blower fans, in chrome or coppertone finish,



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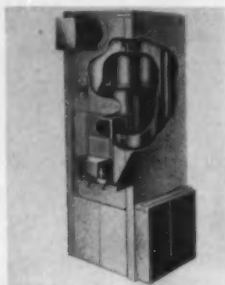
equipment developments

(Continued)

are available for use with range hoods or as separate ventilating units.

Gas-Fired Furnace

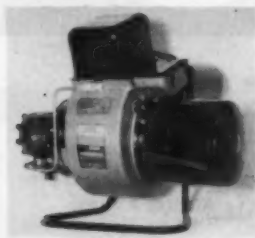
MODEL 554-80 gas-fired furnace rated at 99,000 Btuh input and 860 cfm at 85 deg rise—*Thatcher Fur-*



nace Co., Dept. AA, Center St., Garwood, N.J. Featured are front flue, heavy gage steel heat exchanger, front radiator cleanout, recessed burner compartment, automatic humidifier, heavy gage steel wrap-around liner, single port upshot gas burner and box type draft diverter.

Compact Oil Burner

MODEL "SS" oil burner featuring compactness and ease of installation—*Sundstrand Engineering Co., Dept. AA, 1325 Seventh St., Rockford, Ill.*



Rated in graduated models from 0.65 to 15 gph, the burner uses a right hand motor mount with fuel pump on opposite side and square box type ignition transformer on the top.

Registers, Diffusers

No. 1000 baseboard diffusers, no. 105 diffuser side wall register and

no. 2000 perimeter base intake—*United States Register Co., Dept. AA, 344 E. Burnham St., Battle Creek, Mich.* Baseboard diffusers are 2 $\frac{7}{8}$ in. deep, 4 $\frac{5}{8}$ in. high, in 2, 4 and 8 ft lengths. Cfm rating ranges from 80 to 190. Intake is designed for use with diffuser; it is in 2 and 4 ft sizes. Louvered lanced bars slant in and up. Side wall register is in 10 \times 6, 12 \times 6 and 14 \times 6 in. sizes. Cfm rating ranges from 75 to 326. Unit diffuses at 180 deg. Single valve has set lock.

Direct Fired Unit Heaters

"POWER SAVER" direct fired space heating units for factory, warehouse and other areas where duct air distribution systems are not required—*Jackson & Church Furnace Div., Dept. AA, 321 N. Hamilton St., Saginaw, Mich.* Capacities range from 400,000 to 2,000,000 Btuh, and both gas- and oil-fired models are available. A separate direct driven induced draft blower is used to maintain constant draft throughout a firing cycle. Controls are wired to comply with the designed sequence of operation, contributing to balanced combustion within the firing chamber, according to the manufacturer.

Tubing Tools

LINE OF tube working tools for flaring, cutting, bending and swedging all types of tubing—*Wilson Mfg. Co., Dept. AA, 787 S. Barksdale St., Memphis 4, Tenn.* Flaring tool cone is chrome finished ball bearing swivel operating unit which controls tube insertion height. Bar type flaring tools are hinged to open like gate for insertion of tube end. Cutters have dual thrust alignment ball bearing feed mechanism for minimum friction. Bending tools make bends to 180 deg in copper, aluminum, soft steel and other materials. Swedging tools have gage lines to show correct height to insert tubing in clamp die.

Evaporator Units

EVAPORATOR UNITS with V coils for adding cooling to warm air heating systems—*Magic Aire Div., United*

Electric Co., Dept. AA, 501 Galveston St., Wichita Falls, Tex. Plenum coil units fit most furnaces. Features are air splitter for even distribution of air to cooling coil, connections free of stack; insulated double drain pan; insulation on treated air side. Ratings are from 2 to 5 tons, from 800 to 2000 cfm, the company reports.

Blower and Cooling Coil

"ADAPTOMATIC" blower and cooling coil assembly for attic or basement installation where remote cooling



system is used—*Fedders-Quigan Corp., Dept. AA, Trenton 7, N. J.* Two and three ton models are available. Under-unit channels provide hanger connections for overhead joist supports. Condensate from dual coils is fed to a single drain line.

Fans, Ventilators

MODEL 890 BLH double fan for supplying warm and cold air ducts in high velocity systems, models V and H "Sky Vent" power ventilators for roof exhaust, and model H "Short-boy" ventilating unit in tubular construction—*Buffalo Forge Co., Dept. AA, 490 Broadway, Buffalo 4, N.Y.* Double fan with new design outlet features adjustable inlet vanes; roof ventilators are designed for high velocity and high capacity exhaust installations; ventilating unit has hollow shaft and external bearings.

Summer Air Conditioner

"COMPAX" 4 hp summer air conditioner with all electrical wiring completed—*Mitchell Mfg. Co., Dept. AA, 3200 W. Peterson Ave., Chicago.* Self-contained unit uses an air condenser, eliminating on-the-job refrigerant piping, according to the manufacturer.

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Power Roof Ventilators

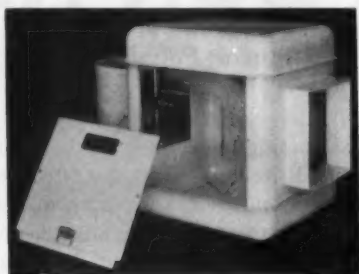
TYPE SRQ power roof ventilators which blow air in rather than out — *Ilg Electric Ventilating Co.*, 2850 N. Crawford Ave., Chicago 41. Units are in 5 sizes ranging in capacity from 1310 to 11,880 cfm. Designed for buildings with inadequate ventilation or



with negative head of interior air pressure due to high volume exhausting, units feature aluminum housing, direct connected propeller fan and permanent-split capacitor motor, permanently lubricated ball bearings on motor, low silhouette and choice of one or three phase motors. Draft-eliminating shutters are available.

Furnace Humidifiers

FURNACE HUMIDIFIER designed to control RH in residences heated by forced warm air — *Air-Heet Corp.*, Dept. AA, 4535 W. Washington Blvd., Chicago 24. Unit has square cabinet with round collars connected to two sides and another in top. Circular basket of



woven cellulose sponge yarn is suspended from circular trough in top of cabinet. Float tank maintains water level. Solenoid valve, shutoff valve and water strainer are connected to float valve inlet; humidistat controls solenoid valve operation. Drain connection handles surplus water.

Light Gage Metal Welder

PMM.OC-50-36 AIR OPERATED electrical resistance press model combination seam and spot welder de-

signed especially for light metals — *Sciaky Bros., Inc.*, Dept. AA, 4915 W. 67th St., Chicago. Pressure system can exert maximum of 120 lb electrode force under air line pressure of 80 psi. Electrode force is controlled by pressure regulators; back pressure system permits electrode force as low as 38 lb. Single adjustment regulates tightness of ram guiding during life of equipment. Welding stroke equals $\frac{1}{4}$ in. plus $3\frac{1}{2}$ in. retraction stroke. Welding transformer is designed for single phase, $\frac{1}{2}$ cycle operation. Sequence control panel is in sheet metal cabinet. Phase-shift heat control provides continuously adjustable secondary current, the company states. Electrode wheels are turned by d-c shunt wound motor.

Hand Notcher

NO. 241 HAND metal notcher designed to cut 90 deg notches up to 1 in. deep in mild steel through 16 ga. — *Whitney Metal Tool Co.*, Dept. AA, 91 Forbes St., Rockford, Ill. Blade has slight hook shape for sheaving action and for engaging tip in punch prick for accurate location of the notch. Notching die is fixed to



end of one handle; blade is operated by double lever or linkage action. Overall length of tool is 21 in. It weighs 7 lb. Square or oddly angled notches can also be made in corners of sheet up to $1\frac{1}{2}$ in. length on a side. Corners can be sheaved off at any angle with maximum length of $1\frac{1}{2}$ in. cut. Flanges and folded-up edges in narrow channels, decorative moldings, etc. can be notched with the tool, the company reports.

Draft Regulators

"RED DOT" SERIES of residential and commercial draft regulators in 12, 14, 16, 18, 20, 24, 28, and 32 in. sizes — *Wm. Steinen Mfg. Co.*, Dept. AA, 43 Bruen St., Newark, N. J. Controls are equipped with universal mounting collar for screw or strap type mounting. Residential controls are in four basic combination sizes for use with 6 flue pipe sizes from 5 through 10 in. Basic regulator sizes are 6, 7, 8, and 9 in. Designed to reduce inventories, each is engineered for application to a flue pipe of its own dimension as well as for use on pipes 1 in. smaller or 1 in. larger. Draft is set by calibrated slide bar. Gate is suspended on

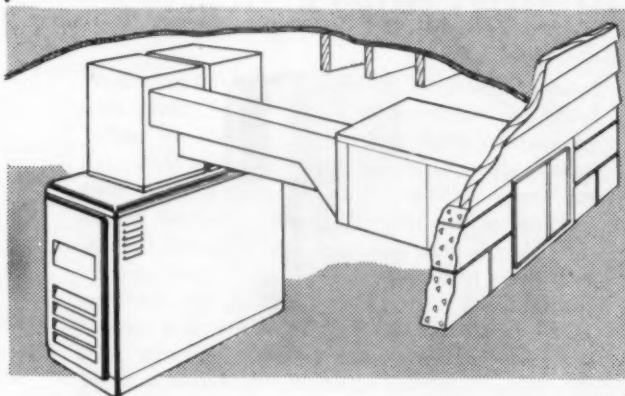
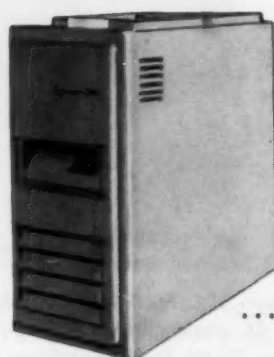
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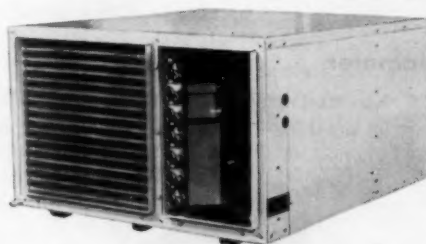
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To

equipment developments

(Continued)

hardened, non-binding pivot pins for free action. Built-in plum bob hastens installation in field.

Air, Water Cooled Units

"MATCH-MASTER," "Flex-Master" and "Style-Master" line of nine air cooled and three water cooled residential cooling units and three commercial sized units — *Westinghouse Electric Corp., Air Conditioning*



Div., Dept. AA, Staunton, Va. "Match-Master" units are in 16 combinations ranging in capacity from 18,000 to 70,000 Btuh through use of interchangeable coils and condensers. Interchangeability of parts is feature of the lines, the company states. Improved features include reduced noise levels and insulated compressor section. "Flex-Master" residential units range from 30,000 to 110,000 Btuh. "Style-Master" commercial models have same rating and can be used as free-standing units or connected to duct work. "Ease-Master" line in two models is rated at 15,000 to 19,000 Btuh, and from 30,000 to 35,000 Btuh, designed for smaller homes.

Air Hammer

"RAMEX" AIR HAMMER with impact controlled from light tap to smashing blow — *E. V. Nielsen, Inc.,*



Dept. AA, 129 Broad St., Stamford, Conn. Model AR-4 hammer drills, chips, trims, rivets, seams, caulks, scales, cuts, gouges and performs other shop opera-

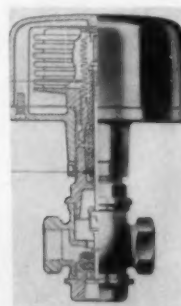
tions. Containing only one moving part plus impact control trigger button, unit consumes 6.3 cfm of air at maximum. Air cushioning is designed to eliminate kickback. Action cannot start until tool touches the work. Angled air exhaust parts keep work surface clean and visible. Unit weighs 4½ lb.

Washable Filter

MODEL P-70 washable air filter designed especially for removing lint from recirculated air — *Air-Maze Corp., Dept. AA, 25000 Miles Road, Cleveland 28, O.* Screen grids on both sides of filter permit lint to be brushed off or vacuumed several times before washing is necessary. Unit is made of corrosion-resistant aluminum screen and polystyrene-bonded fiber glass media in galvanized steel channel. Filters are in 2 in. thick panels, 16 × 20 in., 20 × 20 in., 16 × 25 in., and 20 × 25 in. sizes.

Packless Valves

PACKLESS PNEUMATIC valves for unit ventilators, cooling units and other applications — *Powers Regulator Co., Dept. AA, 3434 Oakton St., Skokie, Ill.* Units



use bronze bellows as primary seal and spring-loaded neoprene "O" ring as secondary seal. Bronze bellows can be replaced without removing valve or affecting system.

Ventilators, Hoods

"KITCHEN-AIRE" ventilators in two models for wall or roof, featuring automatic spring-loaded back-draft damper, and line of "Contemporary" range hoods in variety of metals — *Stewart Industries, Inc., Dept. AA, 320 E. St. Joseph St., Indianapolis 2.* Fans have thermal overload switch which cuts current when fire starts on range top. Air direction change is 60 deg. Units are in 1100 cfm (model KA-170) and 550 cfm (model KA-155). Hoods, featuring removable scallops, are in electro-plated finishes in brushed antique copper, brushed copper, and stainless steel. Standard lengths are 24, 30, 36 and 42 in. with 7 in. depth and 18 in. width. Double incandescent light and switches and aluminum mesh filter are included.



Mark of Integrity

...in reporting circulation facts

We display the Audit Bureau of Circulations* symbol with pride! It's our mark of circulation integrity!

The seasoned marketing man finds trustworthy data vital in his work of advertising media evaluation. And *reliable net paid circulation figures* are among the most valuable facts he uses in selecting printed media for his advertising campaigns.

Once every advertiser guessed about circulation accuracy and gambled on advertising results; today he need not question the wealth of data in any A.B.C. audit report, for it contains only *verified* answers to his most searching circulation queries.

* * *

*The Audit Bureau of Circulations, founded in 1914, is a cooperative, nonprofit association of the leading buyers and sellers of advertising space. A.B.C. sets standards for net paid circulation, audits and reports circulation facts. To be sure of what your print media dollar buys—look for the A.B.C. symbol.

When a media director or advertiser asks us, "How much paid circulation? What do your readers pay? Where does your circulation go? How do you get circulation—your audience for my advertising?" we need only show him our latest A.B.C. audit report. There he finds factual answers that annually pass the test of a trained A.B.C. circulation auditor's scrutiny.

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Publishers who meet the Bureau's high standards know the A.B.C. symbol as a mark of circulation integrity. The value-wise advertiser, too, has learned that *the A.B.C. symbol is his dependable guide to the audited facts* about net paid circulation that protect his advertising investments.



American Artisan

MEASURE OF SERVICE...MARK OF INTEGRITY

Heating-Cooling Line

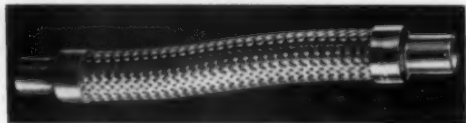
IMPROVED LINE of gas-fired wall heaters, space heaters, and cooling units — *Temco, Inc., Dept. AA, 4104 Park Ave., Nashville, 9.* Wall heaters now have built-in draft relief designed to lower stack temperatures.



Wall heater blower is now available on single wall model as well as dual wall unit. Diffusion type blower in space heater line is designed to provide more even flow of warm air at floor level; improved controls are also added. Cooling equipment includes 2 and 4 hp self-contained multi-zone units with prefabricated duct work. Cooling equipment for use with the company's warm air furnaces now features pre-charged lines and components. Suspended air cooled air handling unit for commercial installation has been added. Heat exchangers are all finished in high temperature porcelain enamel.

Cooling System Noise Absorber

FLEXIBLE CONNECTOR for application in cooling systems to absorb vibrations from pulsating sources — *Cobra Metal Hose Div., DK Mfg. Co., Dept. AA, 4640*



W. 54th St., Chicago. Unit absorbs vibrations and thereby eliminates noises that develop from solid pipe, the manufacturer reports. Units are made of seamless bronze tubing with bronze wire braid sleeve; ends are brazed with braid and flexible tubing.

Counterflow Space Heaters

NINE MODELS of counterflow space heaters ranging from 250,000 to 2,000,000 Btuh output — *Dravo Corp., Dept. AA, Dravo Bldg., Fifth & Liberty Ave.,*

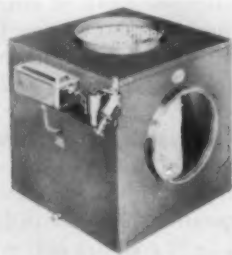
Pittsburgh 22. Induced draft burner is suited for gas, light oil, heavy oil or combination gas and light oil firing. Thermostatically operated switch provides fuel changeover; dual preheating system adapts unit to no. 5 oil. Fan motor requirements, based on 75 deg temperature rise, range from 1½ to 7½ hp, the manufacturer reports.

Name Labels for Equipment

METAL NAME PLATES for labeling and identifying dealer's heating, cooling and other installations — *Seton Name Plate Co., Dept. AA, 394 Central Ave., New Haven 15, Conn.* Plates can be used to identify the parts of a heating or cooling installation for the home owner or to serve as a reminder of dealer's services by listing his name and address. Stock wording for components is available. Made-to-order lettering is made on 1/16 in. black engraving stock; letters are about ¼ in. high in raised aluminum. Plates are 2½ × ¾ in. with adhesive backing or with screws.

Humidifier Units

"MIST MASTER" humidifier with no moving parts, plates or tanks, floats or holders — *Cronstroms, Inc., Dept. AA, 4225 Hiawatha Ave., Minneapolis, Minn.*



Spray is vaporized within humidifier, then evaporated into the plenum of the furnace. No pouring or adjusting are required, the company states. Aluminum unit is finished inside and outside with baked enamel which resists rust pitting and corrosion. Unit can be installed at several points in furnace line.

Electric Drills

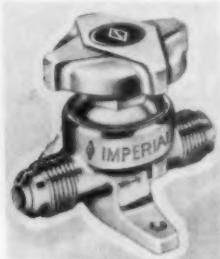
SERIES EN electric drills in sizes from 5/8 to 1 in. for heavy duty application — *Thor Power Tool Co., Dept. AA, Prudential Bldg., Chicago 1.* EN5 (5/8 in.) and EN6 (¾ in.) have three jaw chuck and key; Models EN7 (7/8 in.) and EN8 (1 in.) have taper sockets. All are available with reversing switches in handles. Standard equipment includes 7 ft of conductor cable with plug, safety switch handle, spade handle and removable dead handle. Two smaller models weigh 17¾ lb and are about 16 in. long. Two larger units weigh 16 lb, measure about 18 in. Speeds range from 300 to 430 rpm.

equipment developments

(Continued)

Two-Way Valve

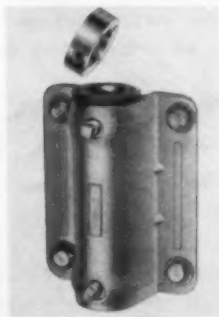
"DIAMOND" in-line packless two-way refrigeration valve for remote installation — *The Imperial Brass Mfg.*



Co., Dept. AA, 1200 W. Harrison St., Chicago 7. Available in both flared and soldered connection and in tubing sizes from 1/4 to 5/8 in., the valve features forged brass body with integral mounting bracket.

Bearing Assembly

"DUPLEX" bearing assembly for power transmission from motor to equipment — *Randall Graphite Bearings,*



Inc., Dept. AA, Greenlawn & Lake Sts., Lima, O. Bearings are self-lubricating and self-aligning. Special flanges for vertical applications are available.

Impact Wrench

MODEL 7000 adjustable torque impact wrench engineered for 1600 to 1800 impacts per minute—*Portable Electric Tools, Inc., Dept. AA, 320 W. 83rd St., Chicago 20.* Neoprene rubber energy "accumulator" takes place of cams, springs etc. and absorbs shock. Unit is said to drill,



V.P.I.
DEMONSTRATION HOUSE
HEATS AND COOLS
with

SONOAIRDUCT.
FIBRE DUCT



Virginia Polytechnic Institute Demonstration House, Blacksburg, Va.
Sponsored by Independent Nail & Packing Co., Bridgewater, Mass.
Co-sponsored by Research Institute of NAHB, and LIVING for Young Homemakers.

Another example of the faith builders and contractors place in SONOAIRDUCT Fibre Duct. Note the easy-to-handle, long length radial feeder duct being installed in photo. Same duct heats in winter—cools in summer!

SONOAIRDUCT is made especially for gas and oil fired, slab-floor perimeter warm air heating systems where the duct is completely encased in dense aggregate concrete. Designed to comply with F.H.A. Minimum Property Requirements. Aluminum foil lined and wrapped with black asphalt duplex kraft. 23 sizes—2" to 36" I.D., up to 50' long. Can be sawed to exact lengths on the job. Fits all standard metal elbows, T's, etc.

For NEW Installation Manual and complete details, write—



SONOCO
PRODUCTS COMPANY

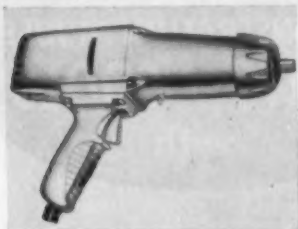
CONSTRUCTION PRODUCTS DIVISION
HARTSVILLE, S. C.

LOS ANGELES, CAL. 5955 SOUTH WESTERN AVE.
MONTCLAIR, N. J. 14 SOUTH PARK STREET
AKRON, IND. • LONGVIEW, TEXAS • BRANTFORD, ONT. • MEXICO, D. F.

equipment developments

(Continued)

tap, ream, and remove screws, nuts, studs. Capacity is $\frac{1}{2}$ in.; unit develops $\frac{1}{4}$ hp, features forward or reverse speeds at 1400 rpm. Weight



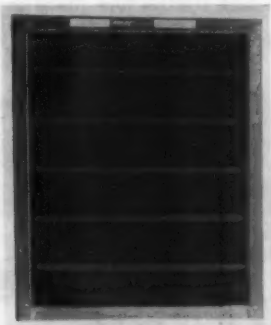
is 7 lb; unit measures $12\frac{7}{8} \times 8$ in. Also featured is a redesigned line of $\frac{1}{2}$ in. electric drills in standard and heavy duty models.

Tower-Condenser

COMBINED EVAPORATIVE condenser and cooling tower with draw-through arrangement—*Baltimore Aircoil Co., Inc., Dept. AA, P.O. Box 105, Baltimore 3, Md.* Draw-through arrangement requires minimum floor space in indoor installations. Fans are on the dry, entering air side to minimize corrosion and improve accessibility and reduce noise level.

Activated Charcoal Filter

"DACOR" DISPOSABLE activated charcoal filter for installation in cooling units, warm air furnaces, and venti-



lating systems—*Barneby-Cheney Co., Dept. AA, Cassady and Eighth, Columbus 19, O.* Designed for air purification by removal of odors, vapor and gases, the unit is a gridwork of activated charcoal coated fiber strips assembled in paperboard frame.

Filters are furnished in any size with or without dust media.

Gas-Fired Furnaces

MODEL 100S-AC and 958-G gas-fired forced air and gravity furnaces rated at 100,000 and 95,000 Btu respectively—*Niagara Furnace Div., Forest City Foundries Co., Dept. AA, 2500 W. 27th St., Cleveland 3.* Features of both models include cylindrical combustion drum, 14 ga welded steel radiator, one-piece burner, silent gas valve. Forced air model has blower speed control which provides three speeds. Blower motor is $\frac{1}{6}$ hp. Cfm rating is 820.

Industrial Blower

INDUSTRIAL blower with turbo inlet designed to reduce turbulence—*General Blower Co., Dept. AA, 8616 Fer-*



ris Ave., Morton Grove, Ill. Three types of blower wheels have been designed to match various industrial applications, according to the manufacturer.

Power Ventilator

POWERED ventilator with special attention given to noise reduction—*Jenn Air Products Co. Inc., Dept. AA, 1102 Stadium Dr., Indianapolis 7, Ind.* Unit uses stainless steel U springs to eliminate much of the vibration being transmitted to the ventilator base, resulting in a lower noise level, according to the manufacturer.

Baseboard Diffuser

WARM AIR baseboard diffuser in 2, 3, 4, 5, 6 and 8 ft lengths—*Brandes Co., Dept. AA, 2046 Winnebago St., Madison 4, Wis.* Designed especially

for cooling, unit features adjustable throw and air pattern to conform



with air requirements for each room. Featured are adjustable end and top diffusion.

Cheek Bender

CHEEK BENDER designed to make bends up to 24 in.—*Bett-Marr Mfg. Co., Dept. AA, 621 E. Excelsior Blvd., Hopkins, Minn.* Two-way trunnion is said to keep bending bar in position at the starting point. Adjustable plate can be set for bends of $\frac{1}{4}$ to $\frac{7}{8}$ in. width. Capacity is 24 ga; twenty and 22 ga spacers are available. Weight is 77 lb.

Plaster Saw Blade

"PLASTER-MASTER" saw blade designed for cutting through plaster walls for warm air heating duct etc.



—*Independent Blade Co., Dept. AA, 587 Thompson Ave., East Haven 12, Conn.* Designed from flexible back stock and specially hardened, blade is designed for longer cutting life in working with plaster and similar abrasive materials.

Oil Burner Nozzle Kit

SERVICEMAN's oil burner nozzle kit with 48 spare nozzles—*Delavan Mfg. Co., Dept. AA, 811 - 4th St., West*

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Speed variations up to 30% allowed. OD's $3\frac{1}{4}" \times 3\frac{1}{2}"$.

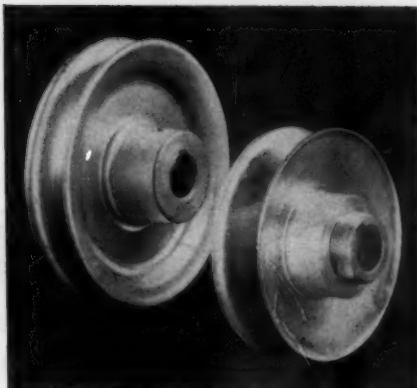
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& Air Conditioning Exposition.

Chicago, Illinois

February 25th to March 1st 1957

Booth No. 940

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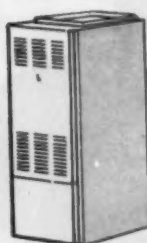
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THE SALES ENGINEERS
6524 Walker St.
Minneapolis, Minn.

W. E. DEAN & COMPANY
P.O. Box 6505, 4250 Harry Hines Blvd.
Dallas 19, Texas

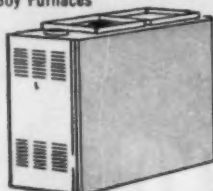
D. D. DARNELL & CO.
8 Mission Bank Bldg.
Kansas City, Missouri

More profit with



Hi-Boy
Furnaces

Lo-Boy Furnaces

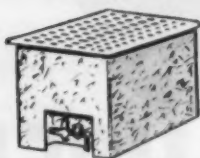


Counter-Flow
Furnaces

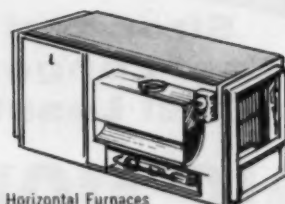


the all-new Heatwave

Floor Furnaces

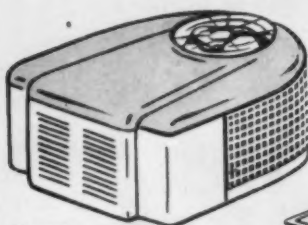


Wall Heaters



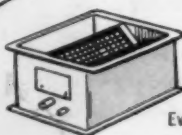
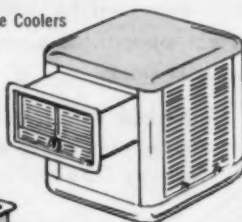
Horizontal Furnaces

heating-cooling line



Remote
Air-Conditioners

Evaporative Coolers



Evaporator Coils

See it!

On display at the 13th International Heating and Air-Conditioning Exposition in Chicago—February 25 - March 1—Booths 226 and 228.

See all the brand-new design features that are bound to make the HEATWAVE line an easy-to-sell, easy-to-install year-around high-profit line for you.

Southwest

MANUFACTURING COMPANY

Subsidiary of The F. E. Myers & Bro. Co. • Aurora, Missouri

equipment developments

(Continued)

Des Moines, Ia. Kit contains adaptors, strainers and filters for most domestic oil burners. Nozzles are selected for wide range of capacities and angles of spray.

Motor-Compressor Units

HERMETIC MOTOR-compressor units for low, medium and high temperature applications in central and room cooling units, dehumidifiers,



etc.—*Evansville Div., Bendix-Westinghouse Automotive Air Brake Co., Dept. AA, 950 E. Virginia St., Evansville, Ind.* Units range from $\frac{1}{4}$ to 2 hp with 1 or 2 cylinders and from $2\frac{1}{2}$ to 3 pts oil charge.

Condensate Pump

"Hy-Lo" MODEL CS automatic condensate disposal unit with magnetic constant level device—*Eddington Metal Specialty Co., Dept. AA, Bristol Pike, Eddington, Pa.* Liquid level is maintained 2 in. above floor level. Unit is especially designed for counterflow systems. Reservoir is 6 × 8 × 4 $\frac{3}{4}$ in. deep; terne plate is 18 ga. Inlets are aligned vertically; special adaptor has nylon ball check valve. Motor is 115-v, 60 cycle, or 230-v, 60 cycle, shaded pole, bronze bearing unit.

Pushbutton Units

"ROTO-PUSH" and "Pres-Test" pushbutton units featuring oil-tight construction—*Cutler-Hammer, Inc., Dept. AA, 315 N. 12th St., Milwaukee.* "ROTO-PUSH" operator unit combines functions of single button station with those of a two or three position selector switch. Contacts are maintained or momentarily operated

equipment developments (Continued)

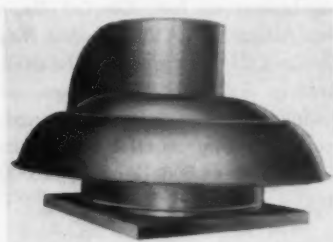
by turning guard ring or depressing button. "Pres-Test" indicating light provides means of checking indicating lights without disturbing control



circuits, lens or bulb. Depth back of panel is 1-23/32 in. for transformer types and 1 7/8 in. for resistor units.

Roof Ventilator

CENTRIFUGAL ROOF ventilator in ten sizes with capacities ranging from 1500 through 33,000 cfm—*DeBothezat Fans Div., American Machine and Metals, Inc., Dept. AA, East Mo-*



line, Ill. Designed for hospitals, schools and other public buildings, units feature low silhouette and quiet performance, and are styled to complement modern architecture and building construction, the company states.

Baseboard Diffusers

"DIFFUSAIRE" baseboard diffuser for perimeter heating and cooling—*Hart & Cooley Mfg. Co., Dept. AA, 500 E. 8th St., Holland, Mich.* Diffuser is equipped with air foil valve and flange which brings top edge of boot flush with the floor. Curved air foil valve provides nozzle-like opening for less resistance to air flow, the company states. High mounting position of valve, close to discharge

point, is said to provide equal distribution throughout length of diffuser.

Water Heater

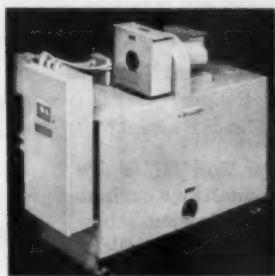
"MIRACLE-CERAMIC" gas-fired water heater with redesigned burner engineered for fast recovery—*Radiant Utilities Corp., Dept. AA, 8817 18th Ave., Brooklyn 14.* Ceramic type lining is welded to steel tank for rust



and corrosion protection; no magnesium rod is used. Steel tank has bottom head clad with heavy layer of copper. Thick layer of glass fiber provides insulation. Unit is in 30, 40 and 60 gal capacities.

Dehumidifiers

MODEL 105 dehumidifier using electrically regenerated drying agents—*Dryomatic Corp., Dept. AA, 806 N. Fairfax St., Alexandria, Va.* Dehu-

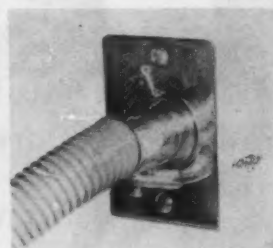


midifier is designed to provide dry atmosphere up to 35,000 cu ft in storage areas, processing rooms and warehouses where humidity is a factor.

Central Vacuum Systems

CENTRAL BUILT-IN vacuum cleaning system for installation in residences by sheet metal contractors and heat-

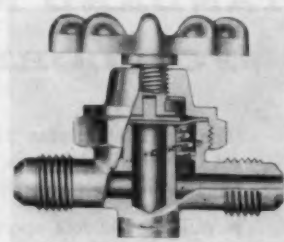
ing dealers—*Sequoia Mfg. Co. and Sequoia Vacuum Systems, Dept. AA, 1090 Brittan Ave., San Carlos, Calif.*



Tank type receptacle with motor is placed in garage; pneumatic 2 in. aluminum tubing extends under floors or overhead to desired locations on floor plan, emerging at floor or low wall inlet sockets where hose can be attached. Two models are available: a 3/4 hp, 90 cfm unit and a 1 1/4 hp, 120 cfm capacity model. Central tank is 16 in. in diameter, 27 1/2 in. high.

Refrigeration Line Valves

PACKLESS refrigeration line valves for remote installations featuring in line, full capacity ports—*Henry*



Valve Co., 3215 North Ave., Melrose Park, Ill. Model "515" valve is available from 1/4 to 5/8 in. sizes for flared connections. Body is of forged brass with integral mounting flange.

Thermostat, Controls

LINE OF controls including hinged thermostat, oil burner controls, hot water immersion controls and combination oil burner and hot water controls—*White-Rodgers Co., Dept. AA, 1209 Cass Ave., St. Louis 7, Mo.* Thermostat features hinged cover which enables it to "disappear" into wall. Oil burner controls feature redesigned heat sensing element which permits mounting pri-



THE FIRST STANDARD REFERENCE FOR CORRECT VENTING!

The new Metalbestos "Safety System" Gas Vent Tables set the standard for efficient gas venting by telling you the practical, correct answers to your gas vent questions.

- ▶ Will the gas vent operate correctly?
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- ▶ How much vent pipe do I need for the job?
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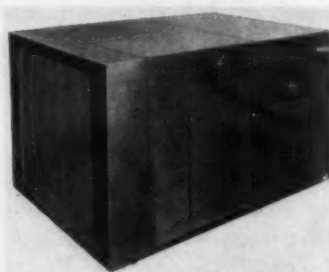
Stocked by principal jobbers in major cities. Factory warehouses in Akron, Atlanta, Dallas, Newark, Des Moines, Chicago, New Orleans, Los Angeles

equipment developments (Continued)

mary control on equipment before shipment to factory. Well immersion controls are designed to give fast response to temperature changes. Combination oil burner-hot water controls are engineered to cut down on wiring, time and materials.

Attic Cooling Units

"TUCKAWAY" model self-contained cooling unit designed for installation under eaves in attic, on roof, in utili-



ty room, or in crawl space—*Perfection Industries, Inc., Div. of Hupp Corp., Dept. AA, 1135 Ivanhoe Rd., Cleveland, O.* Duct work can be overhead, in walls or under floors, or existing warm air duct can be used, according to the manufacturer. Units are rated at 24,000 Btu and 36,000 Btu.

Acid-Resisting Fan

HEAVY DUTY fan for ventilating systems in chemical plants and other applications where contact with acid



(caustic or alkaline) at reasonably high temperatures is necessary—*Champion Blower and Forge Co., Dept. AA, Harrisburg Ave. & Charlotte St., Lancaster, Pa.* Treated with resistant coating manufactured by

equipment developments (Continued)

Haveg Corp., Newark, Del., the fan is in a variety of sizes and arrangements and in two types.

Hermetic Compressors

LINE OF hermetic compressors rated from 1 to 5 hp for residential cooling units, and compressors for window cooling units—*Tecumseh Products Co., Dept. AA, Tecumseh, Mich.*



"Rotalock" valves are included on larger models, allowing interchange between valves and tubes in the field. Valve or tube may be set and locked in any location through 360 deg, eliminating compound or short bends, the company states.

Time Switch

"WEATHER-CHRON" regulator, a time switch with outdoor bulb which automatically changes time of switch-



ing action from the night thermostat to the day thermostat as outdoor temperatures change—*Automatic Devices Co., Inc., Dept. AA, 714 Hillgrove Ave., Western Springs, Ill.* Night setback is eliminated in very cold weather and heat flow to the

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*The Most Sensational Developments In The
Heating And Cooling Industry
In Many Years*

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SALES

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SAVED

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DETROIT LAKES,
MINNESOTA

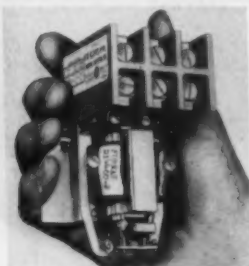
equipment developments

(Continued)

building is stopped at preselected high outdoor temperatures (about 65 F). Unit is applicable for time switch action in any residential heating installation and with any room thermostat. One or seven day actions are available.

Motor Controls

MOTOR CONTROLS in 20, 30, 35, and 50 amp sizes for cooling applications — *Furnas Electric Co., Dept. AA,*



1000 McKee St., Batavia, Ill. Amp size is designed to match single and

polyphase starter requirements for current rated motors through 550-v. Featured are: silver cadmium oxide contacts; lower wattage requirement for magnets to reduce transformer sizes and thermostat contact load; full current in each pole; pressure connectors on terminals; "floating" solenoid assembly on synthetic bushing.

Heating, Cooling Units

"BUDGETEER" line of summer and winter air conditioners featuring re-

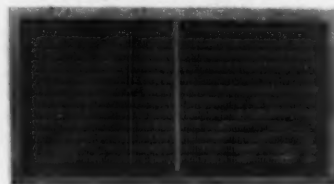


designed cabinets with extended jackets — *Richmond Plumbing Fixtures Div., Rheem Mfg. Co., Dept.*

AA, P. O. Box 111, Metuchen, N. J. Gas-fired furnaces include a built-in draft diverter with outlet at the top of the casing.

Wall Grilles

"FABRIKATED" large size wall grilles made from round edge stock for application in schoolrooms, etc.—*In-*



dependent Register Co., Dept. AA, 3747 E. 93rd St., Cleveland, O. Featured are vertical or horizontal bars with interlocking cross bars; tamper protection (changes in air distribution cannot be made by unauthorized persons); mesh ($3\frac{1}{8} \times 1\frac{11}{16}$ in.) which is said to filter 72 percent of free area yet reduce highlights; 14 ga steel bars $\frac{1}{2}$ in. deep; availability in all sizes.



I'm Warm-air

I'm Cool-air

I'm Electro-air....

and I'll see you at
BOOTH 702

"I'll show you the latest in electronic air cleaners featuring a single ballasted circuit and selenium rectifiers which assure trouble-free operation and high efficiency. You will see the complete line of Electro-air residential, commercial and industrial equipment — the **ONLY** electronic air cleaners having a **5 YEAR PARTS GUARANTEE.**"



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Are you interested in securing additional lines?

We are occasionally asked by our manufacturer advertisers to suggest the names of manufacturers' agents in various sections of the country whom they can contact in regard to representation of their residential heating, air conditioning, and sheet metal products.

If you would like your name listed in our records for inquiries we may receive on your territory, we invite you to write us. There is no charge in connection with this service.

AMERICAN ARTISAN

6 N. Michigan Ave., Chicago 2, Ill.

equipment developments

(Continued)

Draft Control Instruments

COMBUSTION INSTRUMENTS for gas, oil and stoker-fired equipment — *General Controls Co., Dept. AA, 801 Allen Ave., Glendale 1, Calif.* Draft program control,



in conjunction with modulating damper actuator, is said to maintain correct draft and assure safe starting. Manual switches, terminal facilities and relays are contained in one unit. Other instruments are flue gas temperature indicator for detecting wasteful firing conditions; draft gage for indicating amount of draft affecting combustion rate and other instruments designed to proportion fuel supply accurately and cut fuel waste attributed to improperly controlled combustion.

Horizontal Furnace

HORIZONTAL FURNACE designed for installation in attic, crawl space or other location—*Permaglas Div., A. O. Smith Corp., Dept. AA, Kankakee, Ill.* Unit has 140,000 Btuh input rating, is equally adaptable for suspension or base mounting. Ceramic-coated or steel heat exchanger is optional. Heat control unit modulates the flame instead of turning it on and off. Units can be converted from oil to gas with special kit.

Centrifugal Blower

MODEL 101 centrifugal blower designed to discharge air in the 4 psig range — *Turbo Research Corp. Dept. AA, 1630 Euclid St., Santa Monica, Calif.* Developed to "fill the gap in pressure range between previous centrifugal blowers and axial blowers," unit has grease-packed ball bearings in cast iron housing which forms base for aluminum compressor. Delivered volume with standard inlet conditions is 1300 cfm at 8000 rpm against discharge head of 4 psig.

Electric Pittsburgh Lock Hammer

MODEL PLH-1 Pittsburgh lock hammer for 30 to 22 ga sheet metal — *Milwaukee Electric Tool Corp., Dept. AA, 5316 W. State St., Milwaukee 8.* Heavy duty unit uses ball and roller bearings throughout; motor is designed for 115-v a-c or d-c service.

NOW SELL MORE • MAKE MORE
SAVE WORK • CUT EXPENSES
REDUCE STOCK INVENTORIES

sell and specify

A-lum-O-Aire
permanent dry-type
FILTERS

For All Warm-Air
Furnaces and
Winter-Summer
Air-Conditioners

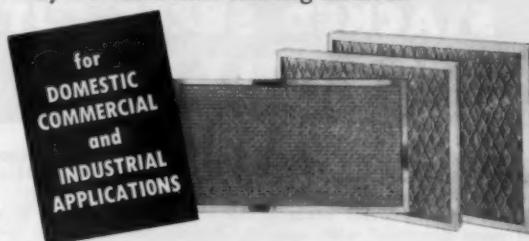
Standard 1" and
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dual and standard
to stock. Special
sizes to order
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Circle 1000

BEST BET for peak sales faster turnover • easier servicing!

Here's the filter that practically *guarantees* fast-action, "register-ringing" filter merchandising! Features that *help* you sell, *plus* an established demand, make it a real volume-builder.

You'll *sell* more because the market is already primed and educated on the economy and superior efficiency of new *permanent* filters. You'll make more because the new "A-lum-O-Aire" pricing policy lets you realize a better return while you're meeting and *beating* competition!

What's more, "A-lum-O-Aire" is a natural tie-in with your present service operations. You gain better control of your service accounts — and add new ones as you go along! Better yet, you save time, effort and expensive material costs required by out-dated filter cleaning methods.



Sounds fine, so far! But what about "minimum quantities," quotas and stock requirements? *That's* where "A-lum-O-Aire" tops them all! You *buy* only what you can *sell* and you stock only what you *NEED*! And, you can forget *sizing* problems.

Safe, clean and economical, "A-lum-O-Aire" needs no messy oils or adhesives to catch dirt, dust or lint particles. Revolutionary "A-lum-O" Aluminum Wool does *ALL* the filtering; saves work and worry — washes clean in a jiffy with cold water. Rustproof and fireproof. Approved by Underwriters' (Class 1). Costs less per clean filter than any other and they can be cleaned as often as necessary without sacrifice of efficiency.

Attention Distributors: Exclusive territories in several selected areas still available. Write for details, today!

Carey

Electronic Engineering Co.

METAL WOOL DIVISION

Dept. A-27

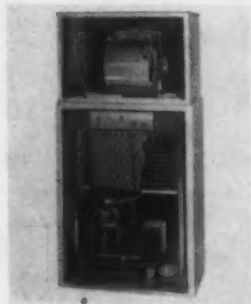
1880 Clifton Avenue Springfield, Ohio

equipment developments

(Continued)

Cooling Equipment

SUMMER air conditioning equipment line including packaged self-contained water cooled units, remote air cooled condensing units and packaged horizontal wall units—Morri-



son Steel Products, Inc., Dept. AA, 601 Amherst St., Buffalo 7, N. Y. Self-contained packaged cooling unit, as a companion piece for 1957 furnace line, includes separate blower for higher air volumes required for

cooling applications. Packaged wall unit provides side-by-side rectangular duct openings for connection to new or existing heating system. Remote air cooled condensing unit has companion evaporator assembly for installation as horizontal unit over furnace plenum.

Relief Valves

LINE of temperature and pressure relief valves for positive protection to water heaters—Mansfield Sanitary Pottery, Inc., Dept. AA, Perrysville, O. Model 450-P is for pressure relief only; model 451-TP is for temperature and pressure relief with fusible plug. Both have Btu ratings of 150,000. Fuse plug melts at 210 F.

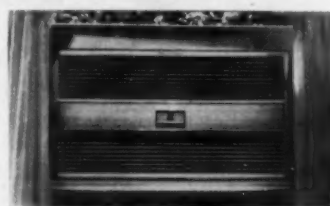
Humidifier, Filter

"HUMIDIMATIC" model 400 electrically operated humidifier with immersion type heating element—Skutle Mfg. Co., Dept. AA, 150 W. Summit, Milford, Mich. Float chamber and evaporating pan are steel,

coated with two coats of acid and alkali resistant porcelain enamel. Float valve parts are brass, nickel and chrome plated. Float is blown glass. Also available are "electronaire" filters for furnaces and cooling units, with aluminum frame and filter media of continuous monofilaments said to be unaffected by humidity changes.

Window Cooling Units

"SUPER CRESTLINE" window cooling units in two models rated at 7½ amp, ¾ hp; and 115-v, 1 hp for residential application—Carrier



Corp., Dept. AA, 300 S. Geddes St., Syracuse 1, N.Y. Feature of the cooling units is flush grille design and clear plastic "fingertip" controls.

STACKED SHEET CUTTING SAVES COSTLY LABOR HOURS

Bett-Marr's amazing 3-wheel band saw is especially designed for sheet metal work and will cut 50 to 70 stacked galvanized sheets. Its 24 inch throat accommodates large sheets, and it is ruggedly built for trouble-free performance.

Quickly adjustable blade speeds from 100 to 3000 FPM allow easy cutting of many materials* without blade chatter. This versatile saw will friction-cut stainless steel, up to 12 gauge, with no distortion. Perfect blade control assures smooth radius and straight line cuts. Bett-Marr costs so little it will pay for itself quickly in any shop.

LOW COST 2-WHEEL SAW OUTPERFORMS COSTLY SAWS

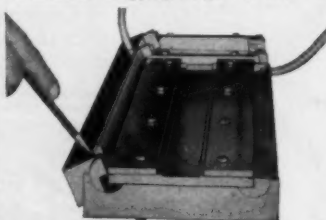
Bett-Mar Model 14SM, shown below, will do everything its big brother (Model 24S) will do, except accommodate the larger sheets. In actual operation, side by side, it has outperformed saws costing 6 times as much. Model 14SM has a 13½ inch throat,



as compared to the 24 inch throat of the larger model. It has the quickly adjustable blade speeds, from 100 to 3000 FPM, for cutting wood, metal, and plastics without blade chatter. Like its big brother, it is especially designed for stacked sheet metal cutting. Both saws have wheels designed so that band cannot slip off.

BETT-MARR TOOL FOR 24" INSIDE BENDS

The new, larger cheek bender makes bends up to 24 inches. Perfect bends along the entire length are assured by a two-way trunnion that keeps the bending bar in position at the starting point. The adjustable plate can be set for bends of ¼" to ¾". Capacity is 24 gauge but 20 and 22 gauge spacers are available. Shipping weight: 77 lbs.



Write for information or ask your distributor



*Bronze, copper, steel castings and forgings, wood and plastics.

MODEL 24S—

3 wheel band saw with 24" throat. Height 61", depth 44", 22" wide, table 20" x 22".

Cuts 50 to 75 stacked sheets



Bett-Marr Mfg. Co. HOPKINS, MINNESOTA

Pneumatic Pittsburgh Lock Hammer

AIR POWERED hammer designed to turn sheet metal locking edges quickly — *Modern Mfg. Co., Inc., Dept. AA, Willow Grove, Pa.* Unit handles 30 to 24 ga sheet metal, is said to turn inside and outside curves as efficiently as straight work. Portable unit weighs 43¼ lb and operates on as low as 40 lb air pressure.

Condensing Unit Controls

CONDENSING UNIT controls for summer air conditioning equipment — *Ranco, Inc., Dept. AA, 601 W. 5th Ave., Columbus 1, O.* Eleven 016 series models include low pressure, high pressure and temperature controls, all equipped with single pole, double throw switches designed to open or close on rise of tempera-



ture or pressure. Manual reset feature is available. Series 017 includes three dual-pressure models. Series features single pole, single throw switches designed to close on rise of low pressure side and open on rise of high pressure side. Low pressure differentials are adjustable between 5 and 40 psi; high pressure differentials are fixed at 40, 50 or 60 psi.

Bench Type Welders

TWO BENCH TYPE air operated 5 and 10 KVA spot or projection welders for light and non-ferrous metals — *Weldex, Inc., Dept. AA, 18425 Weaver St., Detroit 28.* Features include valve and speed controls mounted at cylinder, and ram bearing surface of 15 sq in. at full stroke. Air controls are mounted above welder. Welders are water cooled; transformers have 4 heats. Taper electrodes are used; lower bracket has 4 in. vertical adjustment. Cylinders are 2½ or 3 in. with 2 in. stroke.

Plastic Centrifugal Blower

MODEL CB-40M corrosion resistant 40 in. diameter plastic centrifugal blower with capacity of 15,000 cfm — *Industrial Plastic Fabricators, Inc., Dept. AA, Norwood, Mass.* designed for exhausting corrosive air and fumes, unit is made of unplasticized polyvinyl chloride. Impeller wheels are backwardly curved non-overloading design. Shaft seal, inlet and outlet flanges,

IN CAPACITIES FROM 2 to 50 TONS

THE LARKIN WATER SAVER IS A MONEY SAVER!

All along the line the LARKIN Water Saver Cooling Tower is a money saver for you and your customers:



1 Low initial cost permits you to make lower bids—saves your customers money.



2 Highly efficient—a bonus amount of wetted surface assures conservative ratings. This means lower head pressures, less current loss and smoother performance.



3 Easily serviced—bolted construction. Unit is easily dismantled in the field—all the way down to the sump.

The LARKIN Water Saver can be a money maker for you on every air conditioning installation.

FAVORED FEATURES

- Wetted surfaces of all-heart redwood.
- 16-gauge steel panels mastic-coated on inside, finished with epon base, zinc-chromated primer and two coats of baked-on enamel outside.
- All models equipped with hot-dip galvanized propeller fans. Centrifugal blower optional on all models through 20 tons.
- Gravity-type distribution basin—low pumping head over tower.

Write for free literature, price list and capacity data. No obligation. Or see your wholesaler.



LARKIN COILS INC.

519 Memorial Drive, S.E. • MURRAY 8-3171
P. O. Box 1699, ATLANTA, GEORGIA

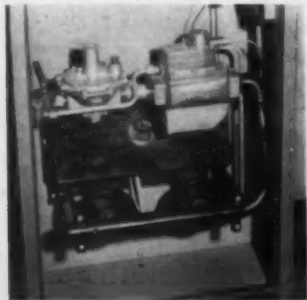
equipment developments

(Continued)

gaskets and drain plug as well as housing and impellers are of polyvinyl chloride.

Gas Heating Control Combination

HC-E AUTOMATIC CONTROL for high capacity gas-fired residential heating systems, combining in one unit a snap-action gas valve, automatic pilot with safety



shutoff and pilot filter — Grayson Controls Div., Robertshaw-Fulton Controls Co., Dept. AA, Greensburg, Pa. Developed for use on furnaces with ratings up to 200,000 Btuh, unit utilizes a valve actuator as thermal element and is suitable for use with all room thermostats. Valve actuator is a short, electrically in-

sulated rod made of high strength alloy which reacts to call from thermostat. Actuator rod type thermal element eliminates need for solenoid.

Year 'Round Units

"COMFORTROL" LINE of year 'round air conditioning units featuring continuous air circulation—*Waterman-Waterbury Co., Dept. AA, 1121 N.E. Jackson St., Minneapolis 13.* Thermostats in each zone control face and bypass mixing dampers. Indoor-outdoor thermostat anticipates weather changes. Gas-fired furnaces range from 90,000 to 600,000 Btuh input; oil-fired units range from 84,000 to 504,000 Btuh. Optional cooling coil is placed in bypass section for cooling.

Portable Power Saw

No. 450 GENERAL PURPOSE portable electric 6½ in. power saw with 1¼ hp motor and 6½ in. rotary blade — *Thor Power Tool Co., Dept. AA, Prudential Bldg., Chicago 1.* Unit can cut at angles up to 45 deg through 2 × 4 in. boards. Motor operates at 5400 rpm. Housings are aluminum alloy die cast; tool weighs 12 lb. Cutting guide notch assures accurate cuts. Automatic telescoping blade guard rides on anti-friction bearings. Guard may be withdrawn for plunge cuts. Moving parts are ball bearing mounted; alloy steel gears are packed and sealed in grease. Unit is

Snap-Lock Easily Installed PIPE

Made from Prime Lock-Forming Galvanized Steel Sheets

You Can Depend on The Complete Line of

STANDARDIZED

Air Conditioning and Heating



Pre-Fabricated

DUCT and FITTINGS



SNAP-LOCK

Write for
Complete Catalog

MAXWELL STEEL COMPANY

P.O. DRAWER 230

FORT WORTH 1, TEXAS

equipment developments

(Continued)

equipped with combination blade, 10 ft cable with ground, and rip fence.

Drill Kit

No. 2200 "JOURNEYMAN'S KIT" containing 1/4 in. electric drill, 25 ft extension cord and metal carrying case — *Millers Falls Co., Dept. AA, 57 Wells St., Greenfield, Mass.* Drill features grease-sealed ball bearings, heat treated alloy steel gears, double pole design switch with automatic release and trigger latch, geared key chuck. Unit drills holes up to 1/4 in. in steel and non-ferrous metals and up to 1 in. in wood. No-load speed is 1900 rpm. Unit is 8 7/8 in. long, weighs 3 lb. Cord has two prong adaptor with grounding wire; case is all steel, has locking hasp and fold-down handle. Hinged compartment contains parts.

Wrap-Around Water Tank Heaters

TWO WRAP-AROUND heaters for storage type electric water heaters — *Westinghouse Electric Corp., Dept. AA, P. O. Box 2099, Pittsburgh 30.* Available in



models from 600 to 3000-w, the heaters consist of aluminum-finished steel sheathing over built-up mica insulation which protects nichrome wire heating element. Flexible band is clamped to tank wall to provide contact and drawn snug by tension clamp. Gripper type electric terminals provide quick and firm connections. Bands are available with both terminals at one end or one terminal at each end. Rust-proof heaters are for nominal tank sizes 14 to 20 in. in diameter; extensions are available.

Narrow Furnaces

"PACER" MODEL narrow-width upright forced air gas furnaces in 187,000 and 225,000 Btu models — *Sequoia Mfg. Co., Dept. AA, 1000 Brittan Ave., San Carlos, Calif.* New units maintain original series configuration with 29 in. depth, 58 in. height, and overall widths of 28 1/2 in. for 187-P models and 33 in. for the 225-P unit. Both can be operated on natural, manufactured or propane gases, the company states.

NOW there are 14 Vaporite MODELS

... a size and type Humidifier for every furnace installation.

EVERY MODEL TESTED AND PROVED

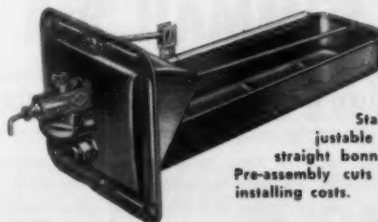


SERIES 555
Fits any straight side warm air furnace.

Corrosion resistant, stainless steel vapor pan 4" x 15". Completely assembled for quick and easy installation.

New copper overflow on Model 555C.

- No extras to buy
- No parts to assemble
- No extra holes to cut
- No tricky mounting



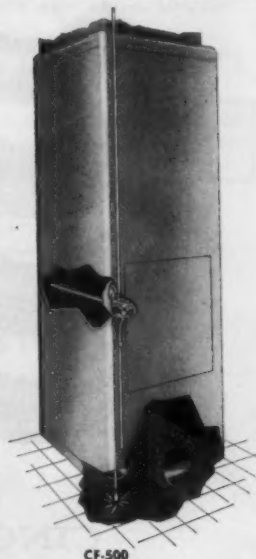
SERIES 577
Stainless steel. Adjustable to sloping or straight bonnet furnaces. Pre-assembly cuts labor time and installing costs.

EVERY MODEL WITH NEW SENSITIVE THERMOSTAT CONTROL TO ASSURE BALANCED HUMIDITY

LOW COST

FIELD-TESTED COUNTERFLOW STYLE

- Designed especially for basementless houses with perimeter heating.
- Complete assemblies for furnaces with concrete floor plenums or with crawl space plenums.
- Installs in minute on exterior of furnace casing. All parts furnished.



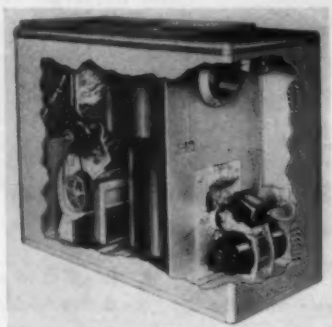
CF-500

WRITE FOR CATALOG AA-2

AUTOMATIC HUMIDIFIER CO, Cedar Falls, Iowa.

Cooling Tower

SERIES CF cooling tower with side-suspended decking designed to facilitate basin cleaning — *Dover Mfg. Co., Dept. AA, Box 498, Independence, Mo.* Horizontal induced draft tower with propeller fan and stainless steel fan shaft is available in sizes ranging from 2 to 100 tons capacity. Metal parts are hot-dip galvanized after fabrication.



Lowboy Furnace

"WHISPER QUIET" lowboy gas- or oil-fired furnace rated at 170,000 Btu input on gas or 150,000 Btu at

bonnet on oil — *Rybolt Heater Co., Dept. AA, 615 Miller St., Ashland, O.* Unit is 25 in. wide, can be taken through doorway. Gas or oil burner is fully enclosed within the vestibule of the furnace, the company states.

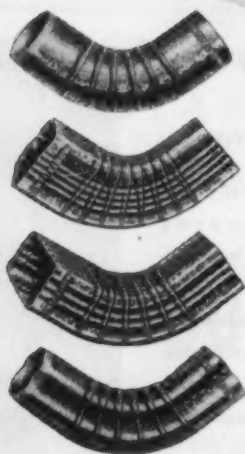
Gas-Fired Incinerator

"SMOGBASTER" 20,000 Btu input gas-fired incinerator for residential application — *Bowser, Inc., Incineration Div., Dept. AA, Cairo, Ill.* Primary and secondary combustion principle is designed to eliminate smoke, odor and fly ash through three features: 1) primary-secondary air-rater which measures and directs air inside and out; 2) fluted combustion chamber liner which deflects outside air into top of combustion chamber; 3) dome where combustion air supplies oxygen needed for accelerated secondary combustion.

Plastic Welding Kit

KIT FOR welding plastic sheets and parts in the shop or field — *American Agile Corp., Dept. AA, 5641 Dunham Rd., Maple Heights, O.* Kit contains 110-v welding gun with nozzle; 15 ft covered flexible electrical cable, capped; nitrogen flow meter with tubing; contour marker; porosity spark tester; marking crayons; cutting-trimming knife; two instruction books on techniques of plastic welding.

Conductor L. Bow says:



Choose Cincinnati Elbows—
mechanically formed on
fully automatic machinery,
then hot-dipped in zinc for
longer life against rust.
Shaped and tapered
to fit any standard size
pipe. Choice of size,
angle, gauge—in copper,
aluminum, stainless
or galvanized steel.
Ask your jobber.

CINCINNATI ELBOW CO.

4730 Madison Road • Cincinnati 27, Ohio



new literature . . .

Power Squaring Shears

BULLETIN No. 69C (74 pages) on underdrive power squaring shears describes and illustrates such features as multi-jaw sleeve clutch; rigid, box type construction; self-compensating holddown; fully enclosed drive; low outline for complete visibility; four cutting edge knives; and self-measuring back gage. Photos of job applications show shears at work for fabricating plants, steel warehouses and sheet metal shops. Specifications for 59 models are brought together in a single table for easy reference. Shearing capacities range from 16 ga to 1 in. mild steel and cutting lengths from 4 to 20 ft—*Niagara Machine & Tool Works, Dept. AA, 683 Northland Ave., Buffalo 11, N. Y.*

Metal Name Plates

CIRCULAR describes metal name plates featuring a black enamel background with natural aluminum border and letters. More than 250 standard wordings are offered, and made-to-order name plates showing name, address, telephone number, trademark or special operating instructions can also be furnished. Also available are engraved bakelite and brass name plates as well as aluminum and bakelite identification tags—*Seton Name Plate Co., Dept. AA, 394 Central Ave., New Haven 15, Conn.*

Aluminum Sheets and Building Products

SIXTEEN PAGE BULLETIN lists sizes and weights of aluminum rod, bar, sheet, coil, plate, tubular and building products carried by service plants in New York and New England. Data on cutting facilities, finishes available and mechanical properties is included—*Joseph T. Ryerson & Son, Inc., Dept. AA, Box 484, Jersey City 3, N. J.; Box 1111, Boston 3, Mass.; or Box 188, Wallingford, Conn.*

Centrifugal Fans

SIXTY PAGE, illustrated brochure covers backward curved blade centrifugal fans designed for a wide range of commercial and industrial ventilating, air conditioning and heating applications. The fans are available in diameters ranging from 13 7/32 to 168 in. Ask for bulletin C-103—*Chicago Blower Corp., Dept. AA, 9863 Pacific Ave., Franklin Park, Ill.*

Steel Roof Deck

CATALOG No. 240 contains eight pages of information on bonderized steel roof deck. Described are three types of deck available in a variety of gages to meet

CONTROL THE IMPACT!



AIR HAMMER AR4

CHROME-PLATED

Now, one air hammer will seal sheet metal seams from light ga. through 16 ga. without a kick . . . handle inside, outside or straight work with the same ease! At the same time, satisfies your need for an air hammer to do maintenance, installation and drilling operations. The RAMEX AR4 delivers up to 5400 blows per minute.

- 7 1/2" long. Weight 4 1/2 lbs.
- Armored against damage.
- Uses 3.2 to 6.8 cfm, at 30 to 100 lbs. pressure.
- Both trigger and contact with work surface is necessary to operate.
- Angled air release ports keep work surface clean.
- Choice of over 40 tools, for every need.

Your old air hammer, regardless of condition, is worth \$10.00, on the purchase of a RAMEX AR4. Ask your Distributor or write direct for further information.

SEE IT! TRY IT!

The RAMEX does it better, faster, more economically!

Representative and Distributor Inquiries Invited.



GET THE FACTS TODAY!

E. V. NIELSEN, INC.

AA1

139 BROAD STREET, Stamford, Conn.

Gentlemen: Please forward the RAMEX AR4 literature

Name

Company

Address

City Zone..... State.....

My Distributor is



DON'T OVERLOOK CHELSEA FLOATING ACTION ATTIC FANS

Whether you're looking for minimum cost home cooling or a complete air conditioning installation — *don't overlook Chelsea attic fans!* . . . Completely practical for any home when used alone, attic fans used in conjunction with air conditioners increase cooling efficiency so tremendously that smaller, less expensive conditioning units can deliver specified performance . . . Now, join the ever increasing group of contractors and builders who have used Chelsea attic fans to increase both profits and sales appeal!



Chelsea

... Home cooling
has become a
"Sales Must"!

CHELSEA FAN & BLOWER CO., INC.
PLAINFIELD, NEW JERSEY

Fan Specialists for over 30 Years!

new literature

(Continued)

any job requirement. Safe load and section property tables are given as well as a complete list of accessories. A 10 step painting process which includes "Bonderite" protection and a baked epoxy-resin enamel prime finish is said to protect the roof deck from damage during shipping, storage and erection—*Inland Steel Products Co., Dept. AA, 4023-A West Burnham St., Milwaukee 1, Wisconsin.*

Tax Calculator

TAX CALCULATOR (\$3.50) provides quick reading of withholding tax and new 2¼ percent F.I.C.A. Calculators are available for both weekly and semi-monthly payrolls—*Paul S. Morton, Engineering Service, Dept. AA, 5131 Meadowlark Lane, P. O. Box 146, Kalamazoo, Mich.*

Tubing Insulation

"ARMAFLEX" FLEXIBLE FOAMED PLASTIC tubing covering is described in illustrated folder. Biggest use of the covering, according to the company, is for the insulation of liquid and suction lines in all types of residential and commercial cooling systems—*Armstrong Cork Co., Dept. AA, 4404 Concord St., Lancaster, Pa.*

Standards for Driers

ARI STANDARD 710-56 for testing and rating driers for use in the liquid lines of air conditioning systems provides a means of determining water capacity and refrigerant flow capacity of a liquid line drier at specified conditions. While the standard does not attempt to reflect complete performance of a drier, nor to establish standards of dryness for a given system, it does establish comparison points with respect to water capacity and refrigerant flow which provide a means of drier evaluation. The booklet covers solid dessicants (as distinguished from liquid anti-freeze

solutions) designed for use in the liquid line (as distinguished from driers used in the suction line or low side) of all types of air conditioning systems. Copies are priced at 50 cents—*Air Conditioning and Refrigeration Institute, Dept. AA, 1346 Connecticut Ave., N. W., Washington 6, D. C.*

Ceiling Diffusers

LOW VELOCITY ceiling air diffusers are described in bulletin No. 390-F-57 (eight pages). Included is engineering and selection data on "Multi-Vent Troffer" combination ceiling air diffuser and fluorescent troffer light as well as data on standard "Modular," "Linear" and "Unitary" diffusers—*Pyle-National Co., Multi-Vent Div., Dept. AA, 1334 N. Kostner Ave., Chicago 51.*

Conductor Elbows and Shoes

WALL CHART illustrates one piece conductor elbows and shoes. Included are square corrugated Style "A" (ordinary curve), square corrugated Style "B" (side curve), round corrugated, and plain round elbows and shoes—*The Ferdinand Dieckmann Co., Dept. AA, 1180 Harrison Ave., Cincinnati 22.*

Combustion Controls and Instruments

CATALOG describes automatic controls and instruments for the combustion industry. According to the company, the catalog covers everything required for a complete combustion installation such as automatic draft control instruments and actuators; solenoid, diaphragm and motor-operated valves for oil and gas; time switches, relays and oil burner primary controls—*General Controls Co., Dept. AA, 801 Allen Ave., Glendale 1, Calif.*

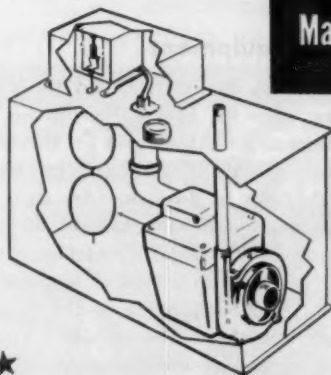
Combustion Chambers

CIRCULAR No. 3715 (eight pages) on "Jet Line" combustion chambers was prepared for distribution by heating equipment wholesalers to their dealer customers. Illustrated throughout, the folder contains full information and specifications on 18 standard chamber sizes (0.60 to 12 gph). Imprint space is provided for the distributor's name and address—*Grant Wilson, Inc., Dept. AA, 141 W. Jackson Blvd., Chicago 4.*

Stainless Steel for Building

THE USE OF STAINLESS STEEL in architecture is discussed in a 12 page brochure which illustrates several typical applications including exterior walls, entrances, roofing, flashing and roof drains. Physical and mechanical properties of the various types of stainless steel are described and applications suggested. Draw-

Little Giant



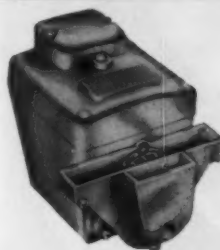
for
the
AIR-
CONDITIONING
Market



CONDENSATE UNIT For Refrigerated Units!

- Hermetically sealed Little Giant Recirculating Pump for trouble-free self-lubricating operation.
- Positive displacement switch with float control, double pole switch for complete circuit break plus a three-conductor cord available.
- Sturdy metal tank corrosion resistant.
- Small and Compact.
- Quiet in operation.
- Completely automatic.

PUMPS FOR ANY AIR CONDITIONING APPLICATION



VAPORIZER

For Industrial
and Commercial
Evaporative
Coolers

- Little Giant Vaporizer Pump, hermetically sealed in oil, self-lubricating.
- Die-Cast aluminum impeller saturates evaporator pads with fine, vapor-like spray for greater temperature drop.
- Small and compact.
- Economical to operate.
- Available for 110 volt 60 cycle or 220 volt single phase current.
- No expensive piping necessary.



Write for free catalog and price list today!

Little Giant PUMP COMPANY

Division of Little Giant Vaporizer Company, Inc.

5101 Classen Blvd., Oklahoma City 18, Okla.

ings and photographs show shapes and textures available for exterior walls and diagrams present details of construction. Panels are available with integral non-rigid insulation as well as rigid type insulation—*Allegheny Ludlum Steel Corp., Dept. AA, 2020 Oliver Bldg., Pittsburgh 22.*

Sizing Cooling Equipment

SLIDE CALCULATOR was developed to aid the dealer in sizing cooling units for homes. Calculations are made in two phases: 1) the heat gain for the entire house is computed in Btuh; 2) heat gain calculation is made for each room to determine the duct size required to carry a proportionate share of the total cooling to each section of the house. Five tables printed on the calculator case contain a total of 53 construction considerations. An accompanying booklet contains a sample problem that shows how to size a typical house for cooling equipment—*Permaglas Div., A. O. Smith Corp., Dept. AA, Kankakee, Ill.*

Packaged Gas Chimneys

THE FEATURES of "Air-Jet Style G" packaged gas chimneys, available with a choice of five top designs, are presented in a four page illustrated circular. The

chimney, weighing less than 100 pounds, is of all-metal construction. According to the company, it can be installed in one-half man hour. It has a double-walled smoke pipe, the inner wall made of aluminum and the outer of galvanized steel—*General Products Co., Inc., Dept. AA, Fredericksburg, Va.*

Corrosion-Resistant Products

CATALOG C-14 covers corrosion-resistant plastic equipment. Included are details about pipes and fittings, valves, fume ducts and fume systems, heat exchangers, cylindrical and rectangular tanks. Also included are a description of physical properties and a table showing chemical resistance values—*Haveg Industries, Inc., Dept. AA, 900 Greenbank Rd., Wilmington 8, Del.*

Gas Unit Heaters

PROPELLER FAN and centrifugal blower type gas unit heaters are covered in a four page illustrated brochure. Included are feature descriptions, specifications, photographs and line drawings showing details of construction. A second circular features a section explaining how to estimate heat loss through the use of a short cut method. Selection and application data are included—*Peerless Mfg. Corp., Subsidiary of Dover Corp., Dept. AA, 1400 W. Ormsby Ave., Louisville 10, Ky.*



**THIRTEENTH
INTERNATIONAL HEATING &
AIR-CONDITIONING
EXPOSITION**

INTERNATIONAL AMPHITHEATRE, CHICAGO
FEB. 25-MAR. 1, 1957

If you bend or form sheet metal

VISIT

BOOTH N-417

DREIS & KRUMP MANUFACTURING CO.

Press Brakes • Hand and Power Brakes • Straight Side Type Presses • Induction Hardened Dies • Special Metal Forming Machinery

7400 SOUTH LOOMIS BOULEVARD • CHICAGO 36, ILLINOIS

we hear that...



MORE THAN 60 "Victoraire" dealers gathered recently at Hall-Neal Furnace Co.'s training center in Indianapolis to study cooling techniques

▶ **HALL-NEAL FURNACE CO.** recently held its second "Victoraire" sales cooling conference. Basic air conditioning sessions, conducted during the first day of the three day school, were highlighted by Dave Lockwood's talk on "Air Conditioning is Important to Me" and a cooling film presented by Jerry Keller of Minneapolis-Honeywell Regulator Co. Laboratory work was conducted under the supervision of members of the firm's engineering staff. Tom Williams introduced the 1957 "Victoraire" line during the air conditioning product and sales session and gave a talk entitled "Are You Prepared for Cooling Profits?" Other speakers included Joe Wellmuth who discussed "An Air Conditioning Sale" and Cornell Bodell who talked about the heat pump.

▶ **WILLIAM WALLACE CO.** recently introduced a gas vent action demonstrator which uses water flow to simulate the actual flow of gases through vent pipes. Developed for use at national trade shows and conventions, the demonstrator shows the practical application of the company's "Metalbestos Safety System" gas vent design tables. Glass pipe is used in the demonstrator so that observers may watch the flow of water. According to the company, when glass pipe representing the size indicated by the gas vent tables is used, the water flows evenly, without the overflow which represents spillage in an operating vent. When an incorrect size is used, the simulated installation fails to function to optimum advantage.

▶ **THOR POWER TOOL CO.** has opened a new branch office in Indianapolis which will serve as headquarters for regional operations in southern Indiana and western Kentucky. The new branch is under the direction of Richard E. James, Jr.

▶ **AFTER 33 YEARS** in the air filter business, John R. McConnell, 68, has retired as vice president of American Air Filter Co., Inc. Mr. McConnell has been vice president since 1938 and director of advertising since 1940. He is being retained by the firm as a consultant on special projects.

for business

for industry

for homes

the most refreshing
cooling systems
in the world are

ChillAir
EVAPORATIVE COOLERS



MODELS 30WP, 32WP, 40WP, 42WT
LARGE COMMERCIAL COOLERS

duplicating in office, plant or home the wonderful, healthful freshness of early morning... at the lowest operating cost, the easiest installation!

If you're a contractor or distributor, you'll be interested! Let us send you full information...

National Engineering

& MANUFACTURING, INC.
Sales Division
SEDALIA, MISSOURI

NATIONAL ENGINEERING & MANUFACTURING COMPANY
SEDALIA, MISSOURI

Gentlemen:

I am interested in further information on CHILL-AIR FANS.
DEALER AND DISTRIBUTOR INQUIRY INVITED.

☐ I AM A DEALER ☐ I AM A DISTRIBUTOR

NAME _____

STORE NAME _____

ADDRESS _____

CITY _____

ZONE _____ STATE _____

AA 1-56

NOW- SUSTAINED HEAT FROM GAS OR OIL FIRED FORCED-WARM AIR FURNACE

STOR-HEAT UNITS

MOUNTING DUCT PLENUM

with
STOR-HEAT Units

HEAT STORAGE UNITS FOR HOME AND COMMERCIAL HEATING SYSTEMS

The invention of STOR-HEAT brings to the Warm Air Furnace owner the true, warm comfort provided in a penetrating, uniform, even flow heat of a storage system—much in the same way as hot water provides stored heat in radiators.

By installing the proper amount of STOR-HEAT units in the plenum of the heating system, Warm Air Furnace owners can now enjoy this principle of storing heat in a MUCH MORE CONVENIENT AND SATISFYING FORM!

STOR-HEAT "absorbs" furnace heat, then radiates... and with the help of a more continuous blower operation, provides a steady flow of warmth and comfort throughout the home... even after the furnace shuts off during its normal operation.

Airstream Design...

STOR-HEAT is designed with airstream in mind. Each unit is tear-drop shaped. This permits a faster, more even flow of warm air through the duct system.

**QUICK, EASY
INSTALLATION**

- NO WIRING!
- SELF-OPERATING!
- NO ATTENTION REQUIRED AFTER PROPER INSTALLATION!

SEE your SUPPLIER FOR
FURTHER INFORMATION



A. M. HEXDALL CO. Manufacturers of Sheet Metal Specialties
MORRIS, ILLINOIS

DUCT HANGERS • SEAM OPENERS • HAMMERS

we hear that

(Continued)



RONALD N. CAMPBELL, president of Bryant Mfg. Co., looks on as Lyle C. Harvey, senior vice president of Carrier Corp., uses a historic sword to cut the "Golden Anniversary" cake commemorating Bryant's 50th year of operation

► BRYANT MFG. CO. is currently celebrating its 50th anniversary. Ronald L. Campbell, president, said the firm's 50th anniversary observance "will feature expanded advertising and sales promotion activities on both the national and local level."

► "CONTROLORAMA," the heating-cooling controls show developed by Penn Controls, Inc., established all-time attendance records during its fall tour, according to R. H. Luscombe, manager of marketing. The show, presented in 16 cities, drew a total of 6951 manufacturers, wholesalers, dealers, servicemen and engineers.

► THE SPOKANE, WASH. STEEL SERVICE PLANT of Joseph T. Ryerson & Son, Inc. has completed a new office building containing approximately 4500 sq ft of space. The new addition provides increased plant capacity, according to Roy M. Bialkowski, plant manager, as the former office space has been converted to warehouse space.

► A. W. CASH Co. and its affiliate, Cash Standard Stacon Corp., have opened a direct company sales office in Chicago at 332 S. Michigan Ave. to serve the Chicago, northern Illinois and northern Indiana area. Ken Weeks and Bob Lefley are in charge of the new office.

► ALGONAC TOOL & DIE Co. has formed a gas burner division to reintroduce the "Hayward" conversion gas burner. Distribution of the burner was discontinued after 1950 because of shortage of gas supply. Reintroduction will be made at once in cities where gas supplies are being expanded, followed by national distribution.

we hear that

(Continued)

► **LURIA STEEL SUPPLY CO., INC.**, has moved into new quarters at 260 Union St., Catasauqua, Pa. The new facility increases warehousing capacity by 300 percent, according to James T. Karabasz, general manager.

► **FRANK F. ELLIOTT** has been named chairman of the board of directors of Crane Co. Mr. Elliott joined the firm in 1922 and has been president since June of 1955. He is succeeded as president by Neele E. Stearns.

► **AMERICAN COILS CO.** is moving its plant and executive offices from Newark to Farmingdale, N.J. The new building at Farmingdale contains 63,000 sq ft of manufacturing, office, shipping and receiving space.

► **GUESTS OF HONOR** at the recent annual service banquet held by Ceco Steel Products Corp. were Harold D. Jolley, senior vice president and general manager of sales, and H. S. Peterson, manager of construction and maintenance. Mr. Jolley has been with the firm for 40 years, Mr. Peterson for 30.

► **AMERICAN RADIATOR & STANDARD SANITARY CORP.** is spearheading its 1957 heating equipment promotion with a nationwide television campaign. Advertising will be carried by more than 60 stations serving 90 percent of the TV sets in the country. Some 3000 tie-in commercials will be available to distributors and dealers during the year.

► **CLOUD WAMPLER**, chairman of the board of Carrier Corp., has been named to another term as a board member of the National Industrial Conference Board. Mr. Wampler was first elected to the board in 1947 for a one year term and has been renamed for each successive year.

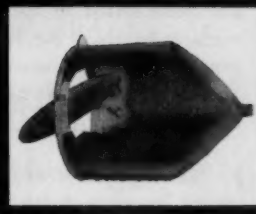
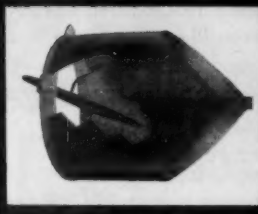
► **ROBERTSHAW-FULTON CONTROLS CO.** has acquired all of the assets and business of Acro Mfg. Co. Under present plans, Acro will become a division of Robertshaw-Fulton and its operations will be continued with its present management and staff.

► **C. D. LYFORD**, vice president of Minneapolis-Honeywell Regulator Co., has retired from active business life due to ill health. Mr. Lyford, 59, has been a vice president of the firm since 1945, in charge of gas control sales in the Residential Div.

► **HENRY M. HAASE**, vice president in charge of engineering and research for Borg-Warner Corp., has been elected president and chief executive officer of the firm's York Div. Mr. Haase will continue to be

WALKER BBG DOUBLE SWING CONTROL

Regulates **UPDRAFT**
Dispels **DOWNDRAFT**
in **GAS-FIRED** combustion equipment!



UPDRAFT—The Double Swing Vane opens INWARDLY for NORMAL UPDRAFT operation. The highly sensitive adjustment weight assembly operates by smooth pivot action, maintains precise draft regulation under all stack draft variations. Automatic fluctuation of vane keeps draft uniform for highest combustion efficiency. All parts are corrosion-resistant. Long, heavy-gauge collar holds control safely out of flue gas stream.

DOWNDRAFT—Vane here is shown swung OUTWARDLY for DOWNDRAFT relief. When down-draft occurs, vane first swings to vertical position at which instant the weight of adjustment assembly is automatically transferred to the relief bar and damper comes into perfect balance. Internal pressure in the breeching causes vane to swing out, relieving the backdraft pressure before it affects burner operation. Entire unit is perfectly balanced, pre-adjusted at factory.

New Walker Double Swing Control Delivers Two-way Performance for Better Efficiency, Greater Safety!

By preventing excessive draft and at the same time guarding against backdraft, the Walker Double Swing Control both increases efficiency and adds to the safe operation of gas-fired combustion equipment. As an extra safety feature, Walker offers an optional safety switch and relay. Prolonged down-draft causes flashing warning signal and eventual cut off of burner. Approved by Underwriters Laboratories, the Model BBG is another example of Walker's progressive design and superior engineering.

Look to Walker FOR A COMPLETE LINE OF DRAFT CONTROL PRODUCTS

Walker, with over 30 years of draft control experience, produces automatic regulators for a complete range of installations... from small space heaters to the largest heating plants in factories and multiple housing projects. For complete information on any of the complete line of Walker products, see your supplier or write directly to the factory.



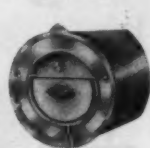
**Walker SHUR-FLO Draft
Inducer-Regulator**

New! Both inspirates and regulates. Corrects most difficulties caused by insufficient draft!



Walker BBG

For all commercial and industrial draft control applications.



**Walker Royal
Purple Model**

The only automatic draft control that's absolutely impregnable to soot, carbon, corrosion, dust, dirt.

See our Booth No. 920 at the IH & AC Exposition
Chicago — February 25-March 1.

WALKER MANUFACTURING & SALES CORP.

1730 PENN. ST.

ST. JOSEPH, MO.

a vice president of Borg-Warner but in the future will not direct the parent corporation's research and engineering activities. Stewart E. Lauer has been named chairman of the board of the York Div.

► **REPRESENTATIVES OF KRAMER TRENTON CO.** covering territories throughout the United States and Canada participated in the firm's recent three day sales conference held at the Trenton Plant. S. Charles Segal, general sales manager, conducted the conference. Speakers included Nathan Kramer and Israel Kramer, company principals.

► **A TWO-DAY MARKETING BOARD** conference, attended by seven district managers from various parts of the country, was recently held by the Permaglas Div. of the A. O. Smith Corp. The conference was supervised by Wally Halket, general sales manager, water heaters, and Wayne Burleson, general sales manager, heating and cooling. Sales, merchandising, advertising and promotion plans for 1957 were among the subjects covered at the meeting.

► **THOUSANDS OF POTENTIAL HOME BUYERS** turned out to inspect the Memphis adaptation of the "com-

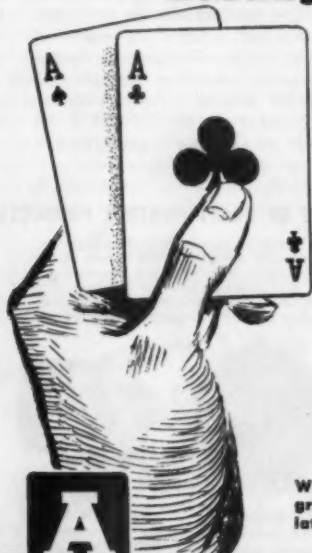
posite house" recently put on display by the Airtemp Div. of Chrysler Corp. and Air Temperature for Homes, Memphis dealer. Plans for the house are flexible so that they can be adapted to various construction methods and all climate areas. The Airtemp Div. is backing the program to acquaint both builders and buyers with the fact that by taking advantage of latest home design and engineering developments, the operating costs for modern cooling and heating can be lowered considerably.

► **OVER 150 CARRIER CORP.** dealers and distributors were guests of the firm recently as part of the prize awarded them following a three month nationwide sales contest. Distributors and dealers from Maine to California and from the Great Lakes to the Rio Grande participated in the sales effort. Winners were chosen on the basis of their sales of residential and self-contained "Weathermakers" during the contest period.

A number of the company's employees in Syracuse recently received checks for adopted suggestions. The total amount distributed during 1956 was \$28,550, which brought the grand total since the program was started in 1944 to \$144,713.

John M. Rachal has been elected a vice president of the firm. He will continue as general manager of the International Div., a post which he has held for the past four years.

You can't beat this pair for combination heating and cooling perimeter systems...



Try this combination in just one home with a basement and you'll be convinced of performance and economy far superior to any warm air system.

- Hot and cold zones are positively eliminated.
- Operates efficiently at all times, regardless of whether draperies or curtains are in open or closed position.

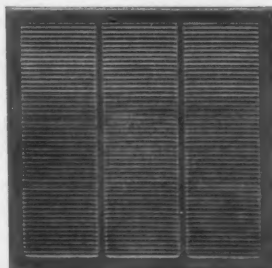
STYLE P-28 FLOOR DIFFUSER

Available in six sizes from 2½ x 10 to 4 x 14.

STYLE A-05 FLUSH RETURN AIR GRILLE

Available in sixty one standard sizes.

We make a complete line of registers, diffusers and grilles for all types of heating and air conditioning installations. Write for your copy of our catalog.



The A & A REGISTER COMPANY

8327 CLINTON ROAD • CLEVELAND 9, OHIO • ATLantic 1-6166

wholesaler doings...



PETE WEHRLIN (left), residential sales promotion manager for Carleton-Stuart Corp., shows disassembled furnace to visitors during recent meeting. Wes Walker (center) examines pilot as Walt Campbell looks on

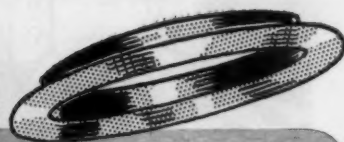
► MORE THAN 225 REPRESENTATIVES of dealers, utilities and residential builders attended a three-day product and promotion presentation recently conducted by Carleton-Stuart Corp., metropolitan New York distributor for Carrier Corp. Guests were taken on individual tours of displays illustrating the promotion program by which the manufacturer and distributor will assist dealers in merchandising their installations. Correct installation of units was also featured in the displays, which included a disassembled gas fired furnace, with individual parts correlated to a breakaway illustration.

► KARR SUPPLY CO., Wheeling, W. Va. wholesaler of Armstrong Furnace Co. warm air heating supplies, has converted its warehouse to self-service. The system has proved to be very convenient for the dealer as well as for the Karr organization.

► THE PAQUIN CO., 13405 St. Clair Ave., Cleveland 10 has been named exclusive distributor for the Tuthill Pump Co. in the northern Ohio territory.

► WILLIAMS, GRITTON, AND WILDE of Salt Lake City Utah will handle distribution of fans, blowers, heating, ventilating and electronic air cleaning equipment for the Sturtevant Div., Westinghouse Electric Corp. Territory to be served comprises Utah, southern Idaho, eastern Nevada and western Wyoming.

► FLARAPCO, INC., with offices in Miami, Tampa and Jacksonville, Fla., has been appointed a distributor of "Vornado" residential air conditioners by The O. A. Sutton Corp., Inc.



One Ring— or thousands... you'll Gain More with NATIONAL Angle Rings



National rolls to your specifications — angles, channels, tees, rods, flat-bars, pipe and tube — plain, or punched for riveting or bolting.



If you haven't worked with rings rolled by National, you're due for a pleasant surprise... for these true rings, guaranteed to fit your job, are:

1. Accurately rolled with uniform curvatures.
2. Easy to fit on the job.
3. Punched with the bolt or rivet holes you need.
4. Available in the metals you use — carbon steels, stainless steels, aluminum, etc.
5. The best value at the best price.
6. Ready for immediate delivery in leg out rings in many sizes.

Tens of thousands of National rings have been used in all parts of the country by large and small sheet metal shops. They are rolled by experts on the most modern high-speed equipment to give you a precision ring at the lowest cost. Write today about your requirements, and the National list of stock sizes and quantity discounts.

Sheet metal fabricating and assembly work is another National specialty organized for YOU. Use it as your stand-by facility.

Phone —
Blshop 7-4255

NATIONAL METAL FABRICATORS

2142 S. Sawyer Avenue • Chicago 23, Illinois

wholesaler doings

(Continued)



VISITORS ENJOY THE HOSPITALITY of Amstan Supply, Fort Wayne at annual dinner

► THE AIR CONDITIONING DEPARTMENT of Amstan Supply, Fort Wayne, Ind., recently held its second annual dealer-wife dinner meeting. The meeting, attended by 34 dealers and their wives, was conducted by F. E. L. Grove, Amstan Fort Wayne branch manager. The company's overall operation as a warm air heating and air conditioning distributor was outlined by C. G. Ruston, manager of sales planning for Amstan, who outlined the complete product, promotion and technical training service offered to dealers in the Fort Wayne area.

► SEVEN WHOLESALE DISTRIBUTORS have been appointed by Perfection Industries, Div. of Hupp Corp.,

to handle the division's line of heating and cooling equipment. Carl W. Millsom, vice president, sales, for the division, pointed out that present direct dealers will be serviced by salesmen directly until distributors have been appointed in their territories. The new distributors are: Electric Constructors, Inc., 3000 Third Ave., S., Birmingham, Ala.; H. L. McMurtry & Co., 614 Fields Ave., Jacksonville, Fla.; Twin-Falls Plumbing Supply Co., 1336 11th Ave., E., Twin Falls, Idaho; Frost Distributing Co., Carterville, Ill. Rodgers & Baldwin Hardware, 309 Water St., Springfield, Mo.; A. O. Jensen Wholesale Furnace & Supply Co., 515 N. 18th St., Omaha, Nebr.; and Edgar A. Brown, Inc., Carnegie at 40th St., Cleveland.

► GENERAL ELECTRIC Co. distributors returning from the company's recent annual air conditioning conferences are busy filling in their dealers on promotional plans for 1957. Each of the firm's three departments has developed a slogan around which future dealer meetings are being built. Dealers for the Commercial and Industrial Air Conditioning Dept. are learning how to use "Golden Keys to the Billion Dollar Decade," while Weathertron dealers are being urged to "Go Places with Weathertron in '57." Meetings for Home Heating and Cooling Dept. dealers are based on the "Three M's" — right material, right manpower, right money — a combination which, the department says, "equals sales."



You need **NO SPECIAL TOOLS...**

to make them fit!

Dieckmann Elbows are made from one piece terne coated, iron and steel, hot dipped galvanized after formation. Also made of all other standard metals in a full range of sizes and angles.

• Ask for illustrated catalog #47 and other literature.

The Ferdinand Dieckmann Co.
1180 Harrison Avenue Cincinnati 22, Ohio

merchandising ideas



THIS OUTDOOR three-dimension billboard is being used by the Minnesota Oil Heat Association in its current publicity program. The billboard was cited by the Independent Outdoor Advertising Association as being "the most outstanding in its field in the nation for the month of December"

► MEMBERS of the Minnesota Oil Heat Association are promoting oil heating by means of a year 'round publicity program which includes outdoor advertising, radio and television spot commercials, newspaper advertising and publicity, envelope stuffers, truck signs and auto bumper strips. Robert C. Hartman, president of the group, says there are thousands of existing homes in the area not yet converted to automatic heating which, in addition to the new house field, provide an excellent market for the sale of forced warm air heating.

► MITCHELL MFG. Co. has prepared a wallet-size folder (a single sheet $15\frac{1}{2}$ by $12\frac{1}{2}$ in. which folds down to 3 by $6\frac{1}{4}$ in.) illustrating its room air conditioning units and featuring a trade-in calculator. Each illustration is accompanied by size, model number and specifications. E. A. Tracey, general manager, said the firm expects 1957 to be the first big year for trade-ins. "We have prepared the folder so a salesman can make an on-the-spot offer on a trade-in deal," he said.

► OIL-HEAT INSTITUTE has prepared two promotional pieces for mailing purposes, one entitled "How We Make Warm Friends" and the other "Your Choice of Three Certified Oil Burner Services." The first, designated OHI No. 253, is an eight page, two color pamphlet measuring $3\frac{1}{4}$ x 6 in., with space provided on the back cover for dealer imprint. The second circular (OHI No. 2053) describes three certified service plans — plan No. 1 providing for oil burner and furnace conditioning; plan No. 2 providing for oil burner and furnace conditioning plus emergency service calls; and plan No. 3 offering the features of plans 1 and 2 and also including repair or replacement of oil burner parts.

put
Extra-Profits
in your
pocket
with

"engineer-approved"

ELGEN All-Tite VANE RUNNERS NOW IN COILS!

Save Time and Money... with ELGEN All-Tite VANE RUNNERS

THE EASIEST AND QUICKEST WAY EVER DEvised

for installing single or double blade turning vanes in square elbows. No special tools required.

New production machinery of our own exclusive design, now enables us to produce button type Elgen All-Tite vane runners in continuous coils, effecting a savings in your cost per job.

COILED ELGEN ALL-TITE VANE RUNNERS MEANS . . .

- **Less Waste!** Waste pieces due to short ends are a thing of the past. Vane runner metal is coiled in 100 foot lengths, you just pull out the exact footage needed.
- **Easier Storage!** Each coil weighs approximately 50 lbs. and is packed in a box 28" x 28" x 5". Box fits easily under bench or against wall.
- **Easier Handling!** No loose pieces lying around to get in the way or collect dirt.
- **Unrolls absolutely flat!** Vane runner metal emerges from the box at bench height . . . absolutely flat . . . ready for use.

TWO MORE ENGINEER-APPROVED ELGEN PRODUCTS THAT SAVE YOU TIME AND MONEY

ELGEN SILENT DUCT

... for forming "flexible" duct connectors. A one piece metal to material unit, packed in coils, unrolls absolutely flat. Makes on the spot work a cinch.

ELGEN DAMPERSET

... for multi-blade dampers, parallel or opposed. Most perfect damper hardware developed.

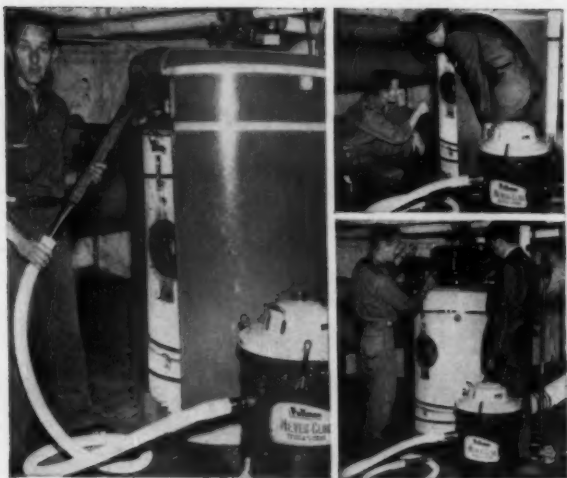
ELGEN PRODUCTS ARE SOLD THROUGH LEADING JOBBERS EVERYWHERE.

Write today for free catalog and "spec" sheet!

ELGEN MANUFACTURING CORP.

41-34 39th Street, Long Island City 4, N. Y.





EVERY CLEANING JOB IS FAST AND PROFITABLE WITH MY PULLMAN VAC . . . NEVER CLOGGED IN 2 YEARS OF CONSTANT USE.

"My dependable Pullman Never-Clog vac gets me in and out of the cellar fast. I not only make good money on furnace cleaning but I get into the basement where I can see what furnace repairs and new equipment are needed. . . and that's where the big profits are in this business."

Jack Kenney
Whetton's Oil Co., Needham, Mass.

The Pullman Never-Clog vacuum cleaner is guaranteed never to clog even on the toughest jobs where stubborn soot, scale, ash and debris would knock out any ordinary vac. The secret's in the Never-Clog filter bag, a permanent secondary filter that always maintains full suction.

The Never-Clog is the one vacuum specially designed for furnace cleaning. It's full portable. . . weighs only 30 pounds. Fully equipped. . . fully guaranteed.

STANDARD EQUIPMENT

- Never-Clog filter bag.
- 27" metal crevice tool.
- Power blower nozzle.
- Handy scraper tool.
- Flexible metal asbestos packed hose.
- 10' x 1 1/2" I. D. heavy duty hose.

CUT YOURSELF IN ON THESE EXTRA PROFITS. FILL OUT COUPON TODAY!



Pullman
NEVER-CLOG®

The World's
Leading
Specialists
In Furnace
Vacuum Cleaners

AA-2

PULLMAN VACUUM CLEANER CORP.
25 Bulfinch Street, Boston 15, Mass.

Rush me complete details on how the Pullman Never-Clog vac will help me sell more equipment, repairs and oil contracts.

Name _____

Company _____

Address _____

City _____

State _____

appointments . . .



James F. Kinney



Robert L. Place



Francis X. Fessler

► FRANCIS X. FESSLER as manager of the heating and gas appliance controls division for Penn Controls, Inc., succeeding Jack Searls who recently resigned. He was formerly division manager of the gas appliance and pump and air compressor controls division. Assisting him will be Robert L. Place. James F. Kinney has been appointed manager of the pump and air compressor controls division to fill the vacancy created by Mr. Fessler's promotion.

► WESTERN ENGINEERING CO., Kansas City, Mo. as representative for Duro-Dyne Corp. in the state of Kansas and western Missouri. Babington Engineering, Phoenix, has been named to represent the firm in the state of Arizona.

► PAUL B. STOWELL, Jackson, Mich. as sales representative in Ohio and Indiana for Kalamazoo Furnace and Appliance Mfg. Co.

► OLIPHANT COMMERCIAL CORP., Oakland, Calif. as representative in northern California for Field Control Div. of H. D. Conkey & Co. The Oliphant firm has offices and warehouse at 610 Oak St.

► TOM PRICE, Houston, Tex., and his associate, G. P. Coffee of Corpus Christi, as factory district representatives in south Texas for Typhoon Heat Pump Co.

► DON ALLBERT as an associate in Norris Blanchard Co., Inc., manufacturers representatives. Mr. Allbert was formerly district manager for the Janitrol Div. of Surface Combustion Corp., supervising the Iowa, Nebraska, South Dakota and western Illinois area.

► GEORGE T. LOWRY as factory representative in Chicago and the surrounding area for Quiet Automatic Burner Corp.

► EDWARD J. KALLENBACK as assistant sales manager for Wayne Home Equipment Co. Mr. Kallenback was formerly manager of the service and order departments. G. J. Klopfenstein has been appointed manager of the service department and James K. Jordan will have charge of the order department.

appointments

(Continued)

▶ **JOHN H. COLBY** as vice president and general sales manager — a newly created position — for Johnson Service Co. Mr. Colby has been the company's general sales manager since March of 1956. He will be responsible for sales of automatic temperature and air conditioning control systems in schools, offices, hospitals, stores and hotels.

▶ **A. C. BROWN, JR.**, general sales manager for Air Reduction Sales Co., as vice president, eastern region, for the company. He will have offices in New York City. **D. D. Spoor**, equipment sales manager, New York, has been appointed vice president, midwestern region, and will be located in Chicago. **J. J. Lincoln, Jr.**, vice president, New York, will become vice president, southern region, with headquarters in Houston, Tex.

▶ **CHARLES V. FISHER** as commercial products division sales manager for The O. A. Sutton Corp., Inc. **Hal McCoy** has been named field sales specialist for "Vornado" room air conditioners. He will work with distributors and distributor salesmen throughout the country on a program of sales and product training. **Maurice L. Starr** has been appointed sales coordinator for the firm's consumer appliance division.

▶ **LEO HUNGERFORD** as director of sales engineering for Utility Appliance Corp. Former sales manager for southern California, Mr. Hungerford has been associated with the firm for the past 17 years.



Leo Hungerford



Alan H. Jobson, Jr.

▶ **ALAN H. JOBSON, JR.** as district manager of the New York area for Perfection Industries, Div. of Hupp Corp. He will service the New York metropolitan area which includes Long Island, northern New Jersey and southern Connecticut. He will work with wholesalers and assist them in the training of dealers.

▶ **GUS VANACORE** as air conditioning sales representative for the Janitrol Heating & Air Conditioning Div., Surface Combustion Corp. Mr. Vanacore, with offices in the Suburban Square Bldg., Ardmore, Pa., will cover the Philadelphia territory.



High Speed Sheet Slitter!

FOR 24 GAUGE TO
10 GAUGE SHEETS
OR COIL STOCK

- ADJUSTABLE GUIDE RAIL GUIDES SHEET THROUGH SLITTER. DEPTH OF THROAT IS 25".
- GUIDE RAIL CAN BE SET TO SLIT 1½" STRIP.
- "DIAMOND HARD" SLITTING WHEEL IS READILY REMOVED TO RESHARPEN OR REPLACE.
- VERTICAL ADJUSTMENT SCREWS RAISE OR LOWER MACHINE TO HEIGHT OF YOUR BENCH—32" to 36".

THE **Flagler** CORP.

19325 Filer Ave.

Detroit 34, Mich.

Phone: Twinbrook 3-3161



QUICKLY
RETURNS
ITS
COST.

SEND
FOR THE
FACTS!

DISTRIBUTED IN
CANADA BY
McDERMID BROS.
TORONTO

FEDERAL

FUEL OIL FILTER

**the Ideal Unit
for every job...
LARGE or SMALL**

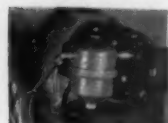
**The Finest Filter to
★ SELL
★ INSTALL
★ SERVICE**



INSTALL ON TANK



PUMP OR BURNER



Here's the *one* filter unit that satisfies both customer and dealer requirements. Designed by heating engineers to prevent clogging of burner nozzles and provide trouble-free service of oil heating systems. Continuous, complete filtration traps all dust, dirt, sludge, rust and other impurities.

One model with 90 g.p.h. capacity handles most filtering jobs. Only one unit to stock—solves inventory problems.

Simple to install with minimum of fittings. Easy to service with replaceable Federal C-77 cartridge which fits all leading filters. Low initial cost makes it easy to sell.

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(DIVISION OF A. R. WOOD MFG. CO.)

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**Kwik-Way
DAMPER
REGULATOR
SETS**

Preferred
**BY THE
VAST MAJORITY**

**NO. 69 SET
SINGLE BEARING
FOR SMALL DAMPERS**

Identical with No. 70 except that it is furnished with just one bearing.

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MANUFACTURING CO.
500 EAST EIGHTH ST.
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IN CANADA
**HART & COOLEY MFG. CO.
FORT ERIE, N. ONTARIO**



**NO. 70 SET
FOR LARGER DAMPERS***

Has two retractable-bolt bearings. The easiest, most convenient and efficient set ever devised. Most economical, too, all things considered.



ONE BLOW SETS BEARING SECURELY

appointments

(Continued)

► **AIR EQUIPMENT DISTRIBUTORS** of Wisconsin, Milwaukee, Wis. as a representative for Buensod-Stacey, Inc. handling the sale of dual duct air conditioning equipment. Other new sales representatives are Air Handling Products Co., Toledo, O.; Air Products Equipment Co., Chicago; D. S. Anderson Co., St. Louis; E. J. Baker Co., Minneapolis; H. W. Baker Co., San Francisco; Bratton Sales Engineers, Birmingham, Ala.; Cooling & Heating Engineers, Los Angeles; Crawley-Gorbandt Co., Atlanta, Ga.; Frey Equipment Co., Dayton, O.; I. M. Golan Co., Fort Worth, Tex.; Leonard F. Luchner, Boston; James R. McQuaide, Philadelphia; George E. Mead Co., Seattle; D. C. Murphy Co., Des Moines, Ia.; Paller Engineering Co., Indianapolis; J. W. Snyder, Cincinnati; and Robert E. Mason and Co., Charlotte, N. C.

► **ORRA A. RICE** as sales manager of the manufacturing division of The Meyer Furnace Co. He was formerly a sales supervisor, following a period as territorial sales representative for the company.

► **GERALD F. DEER** as sales training manager for Bryant Mfg. Co. Before joining the company, Mr. Deer held various sales posts with Stewart Warner Corp.'s U. S. Machine Div. in Lebanon, Ind.

FLANGES THE DUCT with Amazing Speed!

Less than 5 seconds on short
and lighter pieces . . .
Slightly longer on bulkier pieces

**MAKES PERFECT
DRIVE-CLEATS TOO!**

The **ONLY** tool that does both.
A complete drive cleating tool . . .
no set-up time . . . no adjustments.
Handy to take out to the job when
not needed in the shop. Turns idle
time into production time. Flanges
any square duct up to 20 gauge.
Quickly pays for itself in time,
material and labor savings.

No. 12 Smith's Cleat Bender
(12" wide) . . . \$49.80*
No. 18 Smith's Cleat Bender
(18" wide) . . . \$78.60*
No. 24 Smith's Cleat Bender
(24" wide) . . . \$140.00

*F.O.B. Waukegan, Illinois
Prices subject to change
without notice



**PERFECT
DRIVE CLEATS**
fit the duct without
the use of a screwdriver.
TREMENDOUS SAVINGS
in erection time and labor.

R. E. SMITH

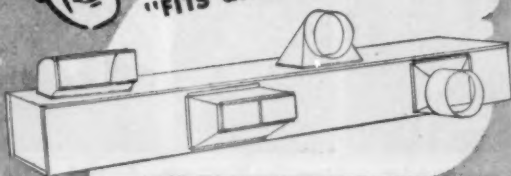
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"SAVES YOU MONEY"



"EASY TO ASSEMBLE"

"FITS and LOCKS TIGHTLY"



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CATALOG



Standardized DUCTS and FITTINGS

MONCRIEF offers a complete line of Prefabricated pipe and fittings for any type of Heating or Cooling system. All precision made, at low mass production cost. Prompt shipment from Atlanta Factory makes MONCRIEF the South's most dependable source of supply on Duct Work, Registers, Grilles and Diffusers. Save time and money by ordering from your jobber TODAY.

Moncrief

FURNACE COMPANY

P. O. BOX 1673

ATLANTA, GEORGIA

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AN I-R
IMPACTOOL
WILL
DO.....**



Want real versatility... real power and speed for just about any job a portable power tool can do? Grip one of Ingersoll-Rand's five great Electric Impacttools—2U, 4U-SD, 5UT 8U and 34U—a size for every job. If you work on metal, wood, masonry or other materials, you'll save time, hard work and money when you own an Ingersoll-Rand Impacttool. Ask your Ingersoll-Rand Distributor for a free demonstration.

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- REAM
- DRIVE SCREWS
- SAW HOLES
- DRILL
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- TAP
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- DRILL MASONRY
- DRIVE STUDS

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11 BROADWAY, NEW YORK 4, N.Y.

16-320

Save Time...Labor...Material with **BEVERLY** metal cutting **SHEARS**

**throatless
SHEARS**

Make any cut—straight, irregular, curved. Exclusive design permits turning work any direction while cutting. 4 models—cap. to 3/16".



Inside SLOTTER

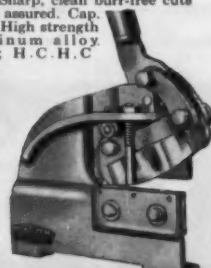
Makes cuts up to 8" inside edge of sheet. Sharp, clean burr-free cuts always assured. Cap. 16 ga. High strength aluminum alloy body; H. C. H. C. blades.



slitting SHEAR

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**TIME SAVING
E-Z-ON
DAMPER REGULATORS
PERMIT
INSTANT ASSEMBLY**

(Shown—head piece of #27 E-Z-ON)

**It's the little things that
make the Big difference!**

Advanced design of E-Z-ON damper regulators permits on-the-job Assembly with only a hammer — no drilling — no rivets. This 16 gauge steel regulator is simply positioned on the damper by sliding it over the scribed center line. The E-Z-ON accurately stays in position until a hammer blow drives the sharp prongs through the damper (E-Z-ON prongs will pierce 22 gauge metal.)

E-Z-ONS PROVED MORE PROFITABLE

Job Histories prove that your apprentice or journeyman can save two-thirds of their damper makeup time with E-Z-ONS.

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724 W. Winnebago, Milwaukee, Wis.

Stocked in CANADA by
THERMIDAIRE CORP.
7-9 Cumberland Street, Toronto

STYLE & SIZE

Famous E-Z-ON standard design No. 27

Solid end tail piece, threaded head piece and wing nut — 3/4" bearing.

Superior E-Z-ON

"Snap-Tite" Design No. 29 Tail piece with retractable snap end bearing, threaded head piece and wing nut — 3/4" bearing.

PEXTO

CRIMPER & BEADER

Rugged and versatile, this PEXTO machine can be used for crimping and beading in one operation . . . or for crimping alone, by replacing beading rolls with plain collars. Bench standard furnished. Write Today.



PEXTO Model No. 0581

THE PECK, STOW & WILCOX COMPANY, SINCE 1793, SOUTHINGTON, CONNECTICUT, U.S.A.

Hard to SODER — Metals Aluminum, Cast Iron Stainless Steel Galvanized Metals





FLUXES

SODERING
BRAZING & WELDING

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6702 BRYN MAWR AVENUE, CHICAGO 31, ILL.

MAID-O'-MIST'S quick hook-up SADDLE VALVE No. 8



Fits 1/2" or 3/4" iron, brass or copper water pipe. Drill 1/4" hole in pipe, clamp on valve. Outlet for 1/4" O.D. copper tubing.

NEEDLE VALVE

No. 816: controls water supply to humidifiers and water valves. Brass; 1/8" I.P. male end; 1/4" O.D. copper tube size outlet.



No. 8

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No. 816

MAID-O'-MIST, Inc.

3217 NORTH PULASKI ROAD
CHICAGO 41, ILLINOIS



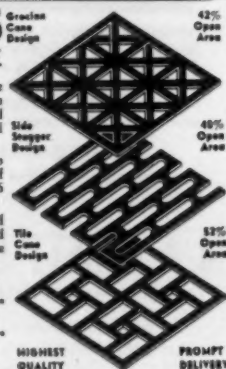
PERFORATED METALS FOR EVERY INDUSTRIAL USE

The "Ornamental" light-gauge designs here illustrated are only a few of the many you can choose from in our new Catalog 39 and we are always pleased to quote on original designs or special work of any kind.

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Send us your blueprints. We are equipped to fabricate special sections to any desired extent and welcome opportunities to make money-saving suggestions.

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(Wilkes-Barre Area)
West Coast Plant,
Diamond Perforated Metals Co.,
17915 So. Figueroa St., Gardena, Calif.



appointments

(Continued)



L. Paul Lee



Louis W. Werthman



Alfred J. Olson

► LOUIS W. WERTHMAN as sales manager for the San Francisco Bay area plant of Joseph T. Ryerson & Son, Inc. He had been manager of the inside sales department since 1947. L. Paul Lee has been named manager of stainless steel sales at the firm's Milwaukee plant. Named general sales manager for the Chicago plant is Alfred J. Olson, who has been with the firm for 33 years. He will be succeeded as sales manager by Robert A. Daggit and Scott Vrooman, both of whom have been with the company for 21 years.

► BRYCE BYARD of Harry Wright Jr. and Associates, Cincinnati, as a manufacturer's sales representative for the Unit Heater Dept. of Carrier Corp. Other new manufacturer's sales representatives for the Unit Heater Dept. are Richard C. Nye of Harry Wright Jr. and Associates, Marietta, O.; Mecha-line Co., Oklahoma City, Okla.; Frontier Engineering Services Co., Salt Lake City, Utah; Jim Marshall, Engineered Sales Service, San Antonio, Tex.; R. Dykstra and Co., Grand Rapids, Mich.; and Paul N. Stack Sales Co., Charlotte, N. C.

► LEN BERGHASH as district manager of the northern New York area for Armstrong Furnace Co.

► ROBERT A. FORSTER as residential division sales manager of Minneapolis-Honeywell Regulator Co.'s Columbus office.



ORNAMENTS

STAMPINGS & SPINNINGS

Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

If you don't have catalog K, send for it NOW.

MILLER & DOING

89 ADAMS STREET

BROOKLYN, N. Y.

NEW IMPROVED
SQUARE DUCT HANGER

With new "Positive Lock" cam action feature... No Special Tools! Hammer does the Job! Available in six lengths.

PAT. NO. 256 3242



A. Round Pipe Hanger used when joist is offset from duct
B. Simple Application of Square Duct Hanger as shipped to you

AS LOW AS **2 1/2¢** EACH

Sharp prong pierces
Insert "Positive Lock" snap in place
Drive sharp prong into joist

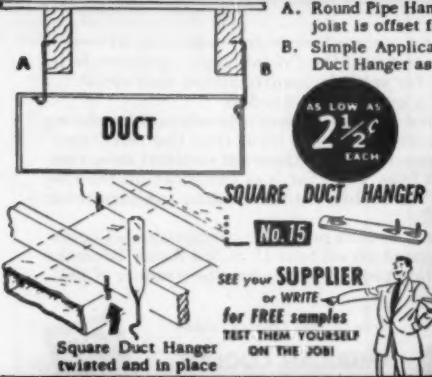
DUCT

SQUARE DUCT HANGER No. 15

SEE your **SUPPLIER** or **WRITE** for **FREE** samples **TEST THEM YOURSELF ON THE JOB!**

Square Duct Hanger twisted and in place

A. M. HEXDALL CO. Manufacturers of Sheet Metal Specialties
MORRIS, ILLINOIS



No. 91 Bench Punch

Capacity —
1/2" hole thru 1/4" iron; 3/4" hole thru 3/16" iron;
2" hole thru 1/8" iron. Weight 79 lbs.
Depth of throat 5"
Stock size of round punches — 1/8" to 1" by 1/32",
1-1/16" to 2" by 1/16".
Punches also made in squares, ovals, rectangular or special shapes to customers order.

Has depth gage at punch line and insertable pipe handle.

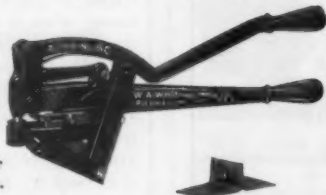
Also made with 10", 18" and 24" depth of throat.

Notching attachment made especially for this tool, enables the operator to notch 1 1/2" x 1 1/2" x 1/8" angle iron.



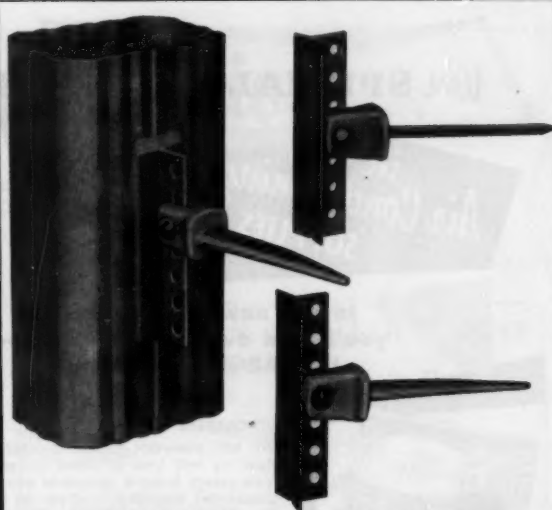
No. 8-C Clip Punch

Capacity —
Three thicknesses of No. 20 Gage steel.
Length 18"
Weight 8 lbs.
A special tool for fastening seams in duct or sheet metal work.
No second operation or hammering down required.
Accurate — fast — neat



Write for catalog and see your local jobber.

W. A. WHITNEY MFG. CO.
636 RACE ST. ROCKFORD, ILL.



CONDUCTOR FASTENERS SAVE YOU TIME AND MONEY!

Here's the best fastener you've ever used! Cadmium plated malleable iron drive (flat shape for bricks, round for wood) bolts to galvanized or copper perforated clip. Solders neatly to back of conductor. Fast, permanent installation. Pipe stands 1/2" from wall. Low priced! Write today!

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7109 KINSMAN ROAD • CLEVELAND 4, OHIO

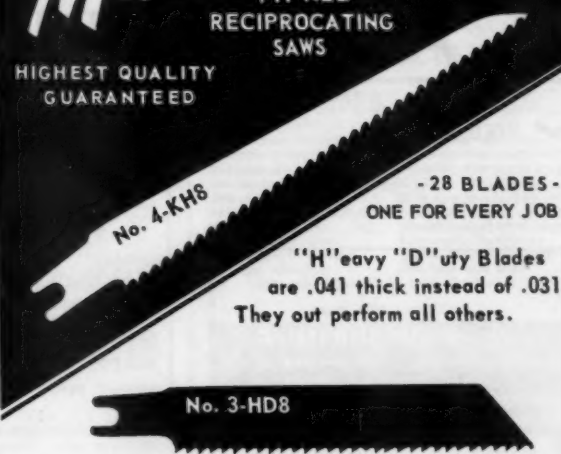
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RECIPROCATING
SAWS

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- 28 BLADES -
ONE FOR EVERY JOB

"H"eavy "D"uty Blades
are .041 thick instead of .031
They out perform all others.



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Air Conditioning
SUPPLIES and PARTS

In this new **DEPENDABOOK**
you'll find over 10,000 items —
the **LARGEST Selection in**
the World!



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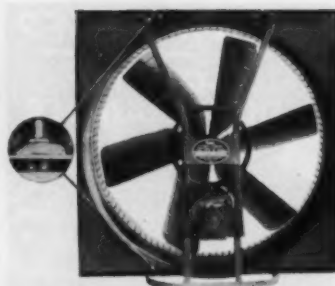
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ORDER BY MAIL or visit our well-stocked warehouses. Don't delay. Get the **Harry Alter Dependabook** by return mail.

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The HARRY ALTER CO., Inc.

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Branches in New York, Dallas, Atlanta



- **Easier to Install**
- **New Quiet Operation**
- **Competitive Prices**

COOLAIR Ventilating Fans

For quiet, general purpose ventilation at lowest cost, you can't beat the Coolair type CQ shown here. It's ideal for schools, auditoriums, and stores... wherever a quiet fan is needed.

Exclusive rubber vibration insulators, as shown in the insert photo, are built into the fan frame. You can meet specifications for resilient-mounted, wall-type fans with far less installation trouble and cost. No bother with mounting fan on rubber or felt.

Proof that Coolair prices are competitive—Coolair fans were used on all four U. S. 3rd Army barracks rehabilitation projects started in the summer of 1955.

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AMERICAN COOLAIR CORPORATION

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Jacksonville 3, Florida



... find what you need quickly
and economically through...

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Rates for classified advertising are 12 cents for each word including heading and address. One inch \$6.00. Count seven words for keyed address. Minimum \$2.00 for each insertion. Cash must accompany order. Closing date 20th of month preceding issue.

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DOUBLE YOUR INCOME from your newspaper advertising by using our low-cost cartoons on Plumbing, Heating & Air Conditioning. For FREE proofs write **LILLY CARTOON ADS**, Box 167, Long Beach, Calif.

WANTED

A complete Universal Conductor Pipe Machine — Eaves Trough — Automatic O. G. Gutter and Conductor Pipe Machinery.

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SALESMEN — 2

1 **EXPERIENCED OUTSIDE MAN**
1 **TELEPHONE ORDER MAN** including some general office work.

CHICAGO JOBBER, FULL LINES — HEATING, VENTILATING & SHEET METAL TO CONTRACTORS.

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Freight allowance and discount on quantity purchases.

THE MODERN HEATING & SUPPLY CO.,
1211 Third St., Portsmouth, Ohio.

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U. S. SAVINGS BONDS!

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BUSINESS OPPORTUNITIES

BUSINESS FOR SALE. Warm air heating, air conditioning and sheet metal business including inventory, truck and equipment, shop and store, three apartments and garage. South side of Chicago. Address Key 1077, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

AVAILABLE AT ONCE

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Financial arrangements can be made with responsible parties.

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SHEET METAL — HEATING — AIR CONDITIONING COMPANY

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OF HOPE**



**HELP YOUR
HEART FUND**

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Cleat
Notcher**



Handles up to 3" wide, 22 ga. or lighter. Hand or foot operation. Mounts on bench, or on job with clamps, or bolts and screws.

HANDY TOOLS AND EQUIPMENT

**New
Clip Punch**

For fastening slips or seams on ducts. Will push a "half moon" through 3 thicknesses of 18-ga. steel. No hammering or flattening out to fasten slip to the duct.

**COMPLETE LINE OF SHEET
METAL MACHINERY**

**Quick Set
Dividers**



Fastest and most accurate on the market. Two sizes for circles up to 36" and 48". Removable steel points, or pencil. No center punch.

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Post Office Box 3035, Newark 5, N. J.

the 'Fit-All'
TRADE MARK

SAW BLADE
FITS ALL RECIPROCATING SAWS
MILWAUKEE SAWZALL • RCS SUPERSAW
SAW GUN • KEY HAK • TRI-SAW • PLUS MANY OTHERS



-- and **FITS BETTER**, with more chucking surface! **TRY IT YOURSELF!**

LONGER BLADE LIFE • LOWER REPLACEMENT COST

FREE BLADE and Literature on Request



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Registers and Grilles
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Middle Village, L.I., N.Y.



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LADDER SHOES**
for safe climbing
... Order today.
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LADDER SHOE CO.**



Eau Claire, Wisconsin

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Lockformer Machines
Chicago Hand Brakes
Chicago Press Brakes
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Savage Nibblers
Mipatan Pittsburgh Lock Hammers
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Bett-Marr Bandsaws
Marshalltown Presses
Punches and Dies

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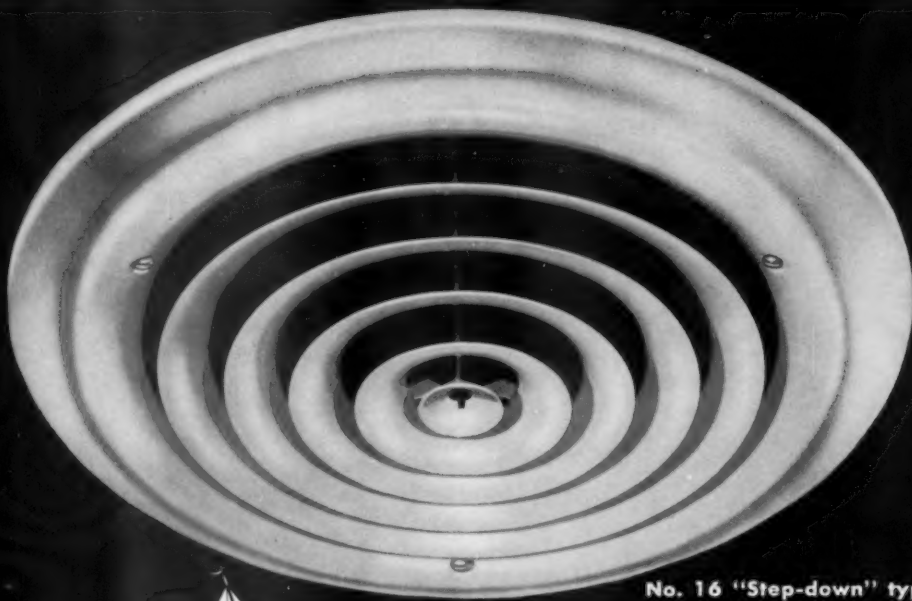
CENTRAL-WEST MACHINERY CO.
335 S. WESTERN AVE. CHICAGO 12, ILL.
PHONE: HAYmarket 1-0900

This section represents an ideal opportunity for manufacturers to get their messages across to readers of a national publication in their field. Whatever you make or sell, you'll find a large, receptive audience, easily reached at a minimum outlay. Plan now to move your products quickly and economically with consistent advertisements in this section.

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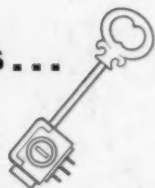
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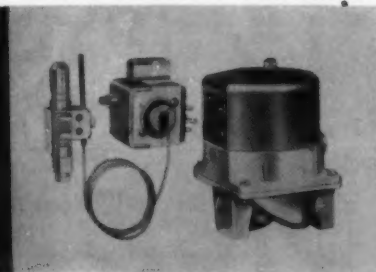
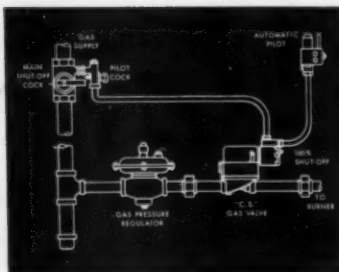
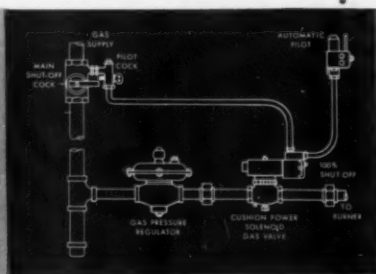
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